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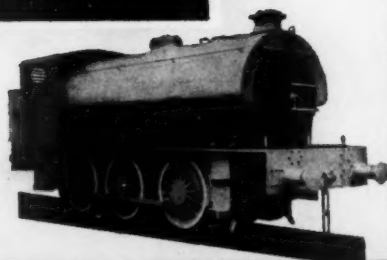
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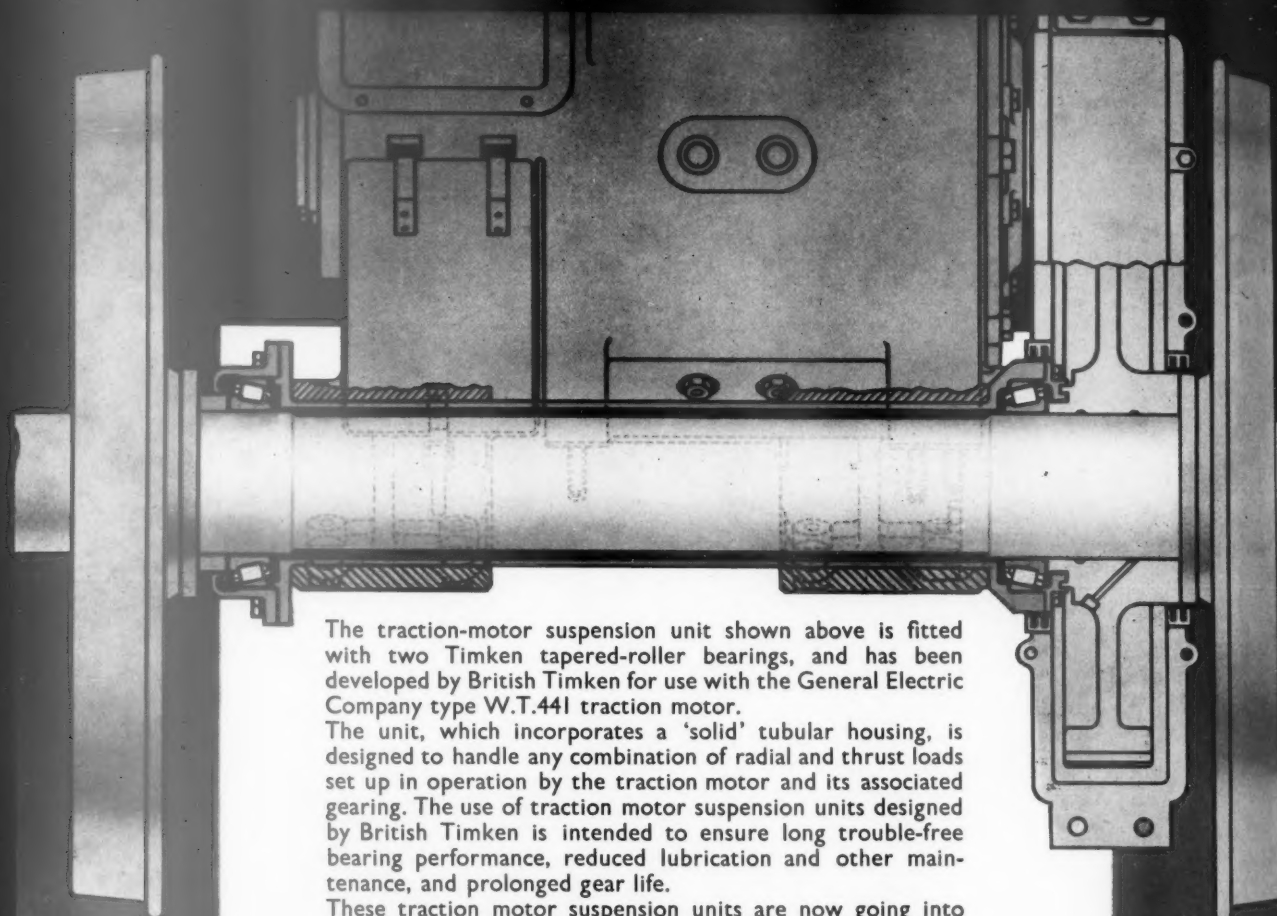
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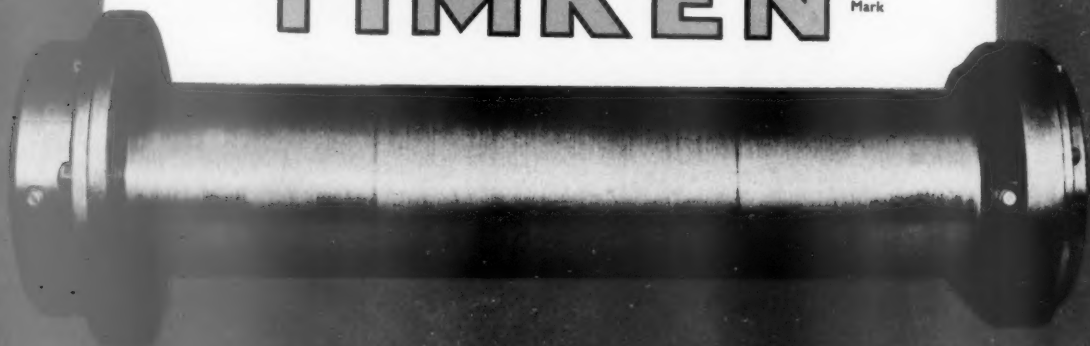
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Transport in the New Parliamentary Session

SPECIFIC mention of transport in the Queen's speech at the opening of Parliament on Tuesday was hardly to be expected. The principal question which concerns British Railways is the amount of further investment in modernisation which the Government considers feasible. This is not yet known. The Chancellor of the Exchequer, Mr. Heathcoat Amory, a few days ago foreshadowed an increase in capital expenditure on nationalised industries; and the Prime Minister announced in the House of Commons, later on Tuesday, that the ceiling on public expenditure had been raised, but did not state what the new ceiling was. It is to be hoped that the Government is seized of the necessity to press on with essential capital works to enable the railways to perform their function. The new legislation referred to in the Speech from the Throne to maintain financial assistance for Colonial development is likely to help railways overseas, which should be enabled to purchase increased quantities of

motive power, rolling stock, and other equipment. Mr. Harold Macmillan referred to the success of the Montreal Conference in achieving agreement on ways in which territories of the Commonwealth could be afforded financial assistance. No official view has been expressed so far on the Bowes Committee report on canals, implementation of which would need complex legislation. No doubt the Government wishes to keep all legislation to a minimum so as to clear the decks for a general election when the time is deemed opportune. That does not mean that transport will not receive attention during the present session. Passenger fares, the subject of the British Transport Commission application to the Transport Tribunal, will doubtless be the subject of questions and debates on the adjournment, as will proposed curtailments, as economy measures, of British Railways branch-line, and London Transport bus services. The financial plight of British Railways, and the steps taken and planned to alleviate it, and progress on the modernisation plan are certain to be debated at length.

Development of Brazilian Railway Industries

REPORTS from Brazil show the trend towards autonomy in the development of the Brazilian railway manufacturing industries. Home industries now produce carriages and wagons, rails and accessories, cast iron and steel wheels, axles, bogies, couplers and drawgear, springs, signalling equipment, electric motors, accumulators, and compressed air brakes. The position regarding electric or diesel-electric locomotives is different; the main difficulty is the lack of auxiliary industries to supply engines, traction motors, and generators. However, repair shops are being built and equipped to re-condition electric and diesel-electric locomotives, and this may prove the first step towards building them. There is also a possibility that diesel railcars will be built in Brazil at some future date. Meanwhile the Economic Council for Latin America, which is investigating the prospects for a common market in the countries concerned, is sending representatives to visit Brazilian manufacturers of railway materials and report on the possibility of their supplying rolling stock and motive power to neighbouring republics. It is to be hoped that Brazil's association with British manufacturers of railway material will long continue.

Praise for the B.T.C.

ON October 22, at the annual general meeting of the British Travel & Holidays Association, the British Transport Commission received a commendation for improvements in rail, hotel, and catering services. This is particularly gratifying in view of the criticism which has recently appeared in a section of the popular press. The extensive measures taken by the Hotels & Catering Services of the B.T.C. have received editorial comment, from time to time, in this journal. Several of the Division's new projects have featured in illustrated articles, and attention has been drawn to improved and increased restaurant car services, packed meals, and other facilities. The praise of the Association shows that these, and other efforts of the B.T.C., are widely appreciated, and that public opinion, which has not always been favourable, has changed. The many problems facing the Division include modernisation of obsolete premises. Doubtless standards will be improved as profits are ploughed back. The commendation is well deserved; a little well-merited encouragement often has more effect than criticism.

Diesels on G.N. London Suburban Services

THE Wood Green to Enfield Chase and Hertford North line seems to be the section best suited to the 20 Craven-built diesel twin railcar sets which it is intended to introduce on the London suburban services of the Great Northern Line of the Eastern Region early next year. The short distances between stations call for rapid acceleration of a service which, despite some smart working, is slow with steam haulage. The Hertford line requires acceleration more, we believe, than does the suburban service on

the main line serving stations between Wood Green, Hitchin and perhaps Baldock, though that also offers good possibilities for diesel operation, more particularly south of Welwyn Garden City. Until electrification, suburban trains on both lines are to be worked by a combination of railcars and trains hauled by diesel locomotives, some of which are already in service. An obvious use for the diesels appears to be the morning and afternoon business services "Widened Lines" between Kings Cross and Moorgate, where also faster running is needed, apart from the ascent north bound from Kings Cross Metropolitan to the main line. The London Midland Region has announced its intention of operating diesels between Moorgate and stations on the former Midland Railway over the "Widened Lines," and there seems to be no difficulty as regards width restrictions.

Refrigerator Wagons in East Africa

A GENERAL demand for mechanically refrigerated wagons for meat and meat products was expressed at a conference held earlier this month at the headquarters of East African Railways & Harbours in Nairobi. The conference was attended by railway and port officers of E.A.R. & H., representatives of the East Africa High Commission and Government departments, and principals of exporting organisations: the Kenya Meat Commission, the Uplands Bacon Factory, and Kenya Co-operative Creameries. The exporting interests declared their willingness to pay the substantially increased charges that would be necessary to compensate for the high cost of this type of vehicle. In the light of this important declaration on the part of transport users, the E.A.R. & H. undertook to re-examine the refrigerator wagon situation immediately. Export of beef and bacon by rail and through Mombasa is an important traffic. One of the main points discussed at Nairobi was the adequacy of existing storage at Kilindini port (Mombasa), which was felt to be able to handle all export shipments without difficulty. The E.A.R. & H. before now have set standards for movement of special traffics in tropical conditions. It will be interesting to see what steps they take to provide mechanically refrigerated stock, and whether other railways overseas will follow suit.

By Pullman to Brighton

PULLMAN cars have been a feature of trains between London and Brighton for 83 years. In early days they were by no means an unqualified success, mainly because the open saloon did not afford the seclusion preferred, at that time, by the British travelling public. Nevertheless, the London, Brighton & South Coast Railway was unwavering in its faith, and the popularity of the Pullman increased with the early years of the new century. This culminated 50 years ago in the inauguration of the famous all-Pullman "Southern Belle," claimed to be the most luxurious train in the world. This seven-car *train de luxe* was the first to be composed of British-built stock, for all previous Pullmans running in Great Britain had been built in the U.S.A. and assembled in this country. It entered public service on November 1, 1908. It was first class only for some years, but third class Pullmans were provided for the first time in September, 1915. With electrification of the main line to Brighton on January 1, 1933, new all-steel multiple-unit stock was introduced. The new "Southern Belle" thus became the first all-steel all-electric Pullman express train in the world. The name "Southern Belle" was changed to "Brighton Belle" on June 29, 1934.

British Railways Continental Freight Services

THE variety of facilities and routes for consigning goods by rail and sea between Britain and many destinations in Continental Europe—and even in Asia—was shown in the informative paper read last Tuesday to the Industrial Transport Association by Mr. L. S. J. Keeys, Commercial Assistant to the Continental Traffic & Shipping Manager, British Railways, Eastern Region. The safety and speed of the services, more especially by one or

other of the train ferry routes, and the variety of special wagons available afford convenient services without break of bulk. Good services are provided by the containers now being developed, and conveyed increasingly by ships built for the purpose. Potential consignors would do well to consider whether the advantages of these and other routes to and from the Continent operated by or in conjunction with British Railways more than compensate for some apparently high charges compared with those of other surface routes.

Film for Instruction in Rules

THE cinematograph is being used increasingly by railways in several countries, including Great Britain, to instruct their own staffs. "The Rule Book," a film produced by the Illinois Central Railroad for training operating staff, is believed to be the first film of its type anywhere. It is an 80-min., 16-mm. sound-colour motion picture. Ninety-five selected rules, regulations, definitions, general notices and operating procedures outlined in the current issue of the I.C.R.R. rule-book are illustrated, with accompanying narration. The use of the film is to be supervised by Mr. Lex B. Harper, Rules Examiner. The rules illustrated and discussed include those concerned with block signalling, A.T.C., and C.T.C. Other rules dealt with in the film govern train speeds, fixed signals, and sanding of rails. Merely to mention 95 rules in 80 min. seems a feat. The film supplements very thorough training in the rules, and there is no risk of superficiality. The Illinois Central is a highly efficient concern, with a good safety record.

A Good-Riding Bogie

RECENT tests with the now well-known "bull-nosed" multiple-unit electric stock on the 1,500-V. d.c. system of the Netherlands Railways, conducted principally for the observation of current collection and pantograph behaviour, resulted in speeds appreciably above 100 m.p.h. being reached on the Eindhoven-Venlo section. Within the last two years, also, these vehicles have gained a reputation in Holland for smooth riding; and therefore an explanation by the bogie designer, Mr. F. G. van Zijp, of Werkspoor, of the considerations involved and principles adopted is of more than usual interest. A lengthy study by Mr. van Zijp was published in the July issue of the *Bulletin of the International Railway Congress Association* (Electric Section), and begins by recognising the six kinds of motions which a bogie can make, though two are of primary importance, and their amelioration can, of itself, improve the conditions of the other four. The Werkspoor bogie resulting from these studies at Amsterdam and Utrecht is a swing-bolster compensated type with helical springs as the primary suspension system and with a combination of helical and laminated springs for the secondary suspension; hydraulic dampers; very long swing links with spherical rubber bushes of great stiffness in the longitudinal direction, but of great softness in regard to transversal and vertical movements of the bolster; and unlubricated centre pivots of frictional material.

Electric Locomotive for Staff Training

THE fact that the electric locomotives for operation of main-line services in the London Midland Region of British Railways are not yet delivered is not hampering the training of motormen or the testing of overhead equipment on the Styal line where conversion recently was completed. Good use is being made of the locomotive originally employed as a gas turbine in the Western Region for experimental purposes. The gas turbine and its associated auxiliaries has been removed by the builders, Metropolitan-Vickers Electrical Co. Ltd., and a transformer and mercury arc rectifiers, to supply power to four of the original traction motors, mounted in their place. The other two traction motors have been removed. The locomotive had a Co-Co wheel arrangement and the original bogies have been retained, but only the two outer axles on each bogie are now motored. Most of the staff

training will be done on the Styal line although operations will be extended as other sections of the Crewe-Manchester line are energised. The first electric services between Crewe and Manchester will commence in the autumn of 1960, and all the staff required for their operation will be trained on this locomotive.

Single-Unit Railcars for British Railways

HIGH passenger-carrying capacity and comfort are characteristics of the single-unit railcars built by the Gloucester Railway Carriage & Wagon Co. Ltd., which are working local services in the London and Birmingham areas of British Railways, Western Region. A description is given on page 539 of this issue. Each railcar is powered by two B.U.T. "A" type 150-b.h.p. engines and the transmission is of standard type. Seating is in open saloons with centre gangway and entrance doors to each bay, which will accelerate station working where the frequent stops must be short so as to reduce journey times. Accommodation is second class only: 45 seats in the main saloon and 20 for non-smoking passengers. The inclusion of this amount of seating with a spacious guard's and luggage compartment in one vehicle, as will be seen from the plan, is a feat of design.

Light Ending Standing Foul

THE collision at Preston on January 16, 1958, was, as shown in our summary in this issue of Brigadier C. A. Langley's report, due to a combination of circumstances leading to a signalman failing to make sure the route was clear into a platform. An engine, intended to follow a parcels train, had been used to effect some urgent brake tests and nobody had noticed its tender to be standing foul of a crossover. There was no track circuiting at the spot, although there was where the parcels train was standing, but this gap in this form of protection is being made good. But for the war complete power signalling would have been now in use. A relay interlocking scheme is included in the modernization plan, but priorities in connection with electrification render it unlikely that it can be carried out for some years. Preston station is one of the busiest, with some 640 daily train and light engine movements in winter and 800 in summer, while the box concerned in the accident handles 400 and 500 daily shunts in those seasons respectively.

Revolution in British Railways Freight Traffic

THIS year's Presidential address to the Railway Students' Association, given last Wednesday by Mr. A. B. B. Valentine, Member of the British Transport Commission, concerned with the revolution on British Railways in the field of freight, has immediately preceded the British Railways and British Road Services exhibition of freight transport vehicles and equipment at the accessible goods depot at Battersea Wharf, London, S.W. In a remarkably lucid and comprehensive address the importance is stressed of door-to-door service by the railways, and mention is made of the equipment designed to solve the problems of transshipment. The primary aim of the exhibition now being held at Battersea is to show facilities for door-to-door transport involving rail and road vehicles.

The modernisation plan itself, Mr. Valentine observes, is designed to provide the right tools for the new tasks; it is an integral part of the revolution. The whole of the expenditure it involves is essential to enable the railways to take their proper place in the provision of an economical system of transport for the nation. It does not imply an expansion of British Railways, which indeed must continue to prune some of their under-employed or unremunerative services and concentrate on those functions which they can be made to perform more efficiently than other forms of transport.

At the moment Britain is still in the stage when expansion of road transport has undermined the profitability of the railways, for two principal reasons "We are in the main,"

he rightly states, "still working a railway system designed to provide for all the requirements of the horse-and-cart era, in accordance with traditional obligations not unreasonably attaching to the Railways in their monopoly days." The second reason is that the British Transport Commission has only just begun to take advantage of its quite recent release from a statutory charging system, related to the value of the traffic but with little regard to the actual cost of its transport, which "has always made nonsense in the new competitive conditions." Both these handicaps belong only to the present transitional phase. He goes on to explain clearly the advantages of concentration of goods traffic into trainloads serving fewer points. The future customer will benefit by relief from the burden of subsidising the most unremunerative railway services, which will have been discarded, by lower rail costs and by speedier and more reliable delivery.

The under-employment of much transport equipment will be only partly cured, Mr. Valentine believes, by "streamlining" the railways. Its economic counterpart, the withdrawal of much road haulage used for the longer distances, especially for regular flows on main routes, will not be voluntarily offered, until unrealistic charges are gradually adjusted; and he goes on to explain the difficulties of adjusting railway charges. As the process gains momentum, in parallel with the modernisation scheme and all the improvements it will offer in quality of service, he is confident that British Railways will be able to attract to their main routes a much larger share of long- and medium-distance traffic.

The ability of a modernised railway system to win a much larger share of general merchandise traffic, would extend, in his view, in varying degrees to many special traffics such as steel sheet, cement, bricks, fish and certain agricultural products. It is not, however, simply a matter of cutting costs and making simple adjustments in charges to render them more realistic, and then relying on modernisation to do the rest. All the future traffic which he envisages on the railways "will not fall into their lap without other radical departures from traditional operating methods and commercial practice." A great many of the changes required are technical, and arise from the need for a much more detailed attention to the peculiar problems and requirements of customers.

The large proportion of railway traffic which does enjoy door-to-door service by rail alone, will not absorb full railway capacity. With other traffics it is important to simplify the process and cheapen the cost of transshipment, so as to reduce the high cost of handling at transfer points and to eliminate delays and risks of damage and the need for costly packaging. The various new methods of dealing with transshipment call for a new attitude of mind. "We must no longer think of what we have called terminals in the past as places where rail transport ends, but as places where traffic is transferred from one form of transport to another." Railwaymen must attune their minds much more to the complementary character of rail and road transport. Study of road haulage by technical and commercial staffs of British Railways should not be difficult "because we happen to have in the Commission's family not only the largest but the most experienced and efficient road haulage undertaking in the country."

After an excellent summary of the true principles of charging, under the new freedom accorded the railways, Mr. Valentine rightly emphasises that rationalisation of charges is likely more and more to involve a detailed study of the circumstances and costs of carrying the traffic, and potential traffic, of individual customers; and the negotiation with each of arrangements and terms which take into account the many factors including regularity and permanence. Because of the very high proportion of fixed costs inherent in all railway working, the more the railways are used, the larger will be the traffics over which these fixed costs can be spread and the cheaper the cost of all rail transport will become. This, he believes, points to the scope for some form of application of the principle of two-part tariffs already well established in electricity supply. There is no logical or economic reason why the charges paid by traders should not differ, as they would if traders

provided their own transport. For the railways the changes in commercial policy will call for more intimate attention to individual customers; inventiveness in meeting them, making every use of new equipment and methods; close supervision of the service given, often throughout to destination, sometimes by staff with specialised experience of the trade concerned; and negotiating skill. They will radically affect the training, and the status, of the sales staff, and will demand still closer team-work between the operating and commercial functions.

Break of Gauge Problems

THE expense, delay, and risk of damage to goods in transit occasioned by break of gauge were recognised in the early days of railways in Britain, a compact and highly-developed country, where it was obvious that the lines of the rapidly growing railway system must soon meet. It was the reason for the "Battle of the Gauges" and for the eventual victory of the standard 4-ft. 8½-in. gauge over the 7-ft. gauge of the Great Western Railway. Where breaks of gauge occur overseas, as in India, Australia, and several countries in South America, this was because it was not realised that what were isolated lines would ever grow long enough to meet, or that there would be a demand for through transport. In India, where the broad, 5-ft. 6-in. gauge lines were built first, the relative cheapness of the metre-gauge lines subsequently constructed was a factor in favour of the narrower gauge, and the costs of transshipment were low; this was the reason also for building the many railways in Switzerland, Italy, and elsewhere of less than standard gauge.

Transshipment today is a serious problem in many countries because of two new factors: the high cost of labour, and road competition. On the other hand, economic development has resulted in the consignment by rail of many bulky articles such as electrical equipment which it would be awkward and expensive to carry by road in mountainous districts, even if suitable roads existed. The tendency to convey heavy and bulky loads by rail continues despite the development of road vehicles for such loads. Sometimes, when the cost and other disadvantages of transshipment are deemed to justify it, the break of gauge is obviated by building a new line on one or other of the gauges, often, but not necessarily, the broader. This has been done, and continues, on relatively small scale in India, usually on terrain where construction is easy. In Australia, where the railways on the mainland are divided by breaks of gauge into half-a-dozen systems, conversion was carried out for some years fairly slowly and on a small scale, apart from the standard-gauge link between New South Wales and Brisbane and some lines in South Australia. Now drastic action is being taken in the building of the 4-ft. 8½-in. line and conversion to that gauge of 5-ft. 3-in. lines from the N.S.W. border, nearly 200 miles through Victoria to Melbourne, as described in our issue of June 13. This work is likely to be followed by several such major conversions or new construction to give through running between major industrial and population centres. New lines are being built and conversions effected to eliminate transshipment in Brazil and elsewhere.

Physical geography, or the expense of conversion or new construction may necessitate continuance of breaks of gauge. It would be quite impracticable, for instance, to broaden to 4-ft. 8½-in. the metre-gauge Rhaetian Railway, which serves a large Alpine area of Switzerland. The methods devised to overcome transshipment difficulties are described elsewhere in this issue. They necessitate heavy expenditure on equipment. How far the Swiss railways of metre or lesser gauge are being helped by the unsuitability of some of the roads, and no doubt by the expense of road building in mountainous districts, is impossible to state. As a Swiss railway officer has pointed out, these lines act as narrow-gauge siding connections for the Swiss broad-gauge system. There is some parallel in railways in countries overseas where the roads are not developed to take heavy or bulky loads. As the cost of transshipment between broad and metre gauge increases, the Indian railways may find it worth while to use equipment such as that

being used in Switzerland, apart from what they already use for their domestic purposes of moving their own metre- and narrow-gauge locomotives and rolling stock on broad-gauge wagons from works, and so on. The same methods may be found practicable by some Australian State railways, and possibly in Argentina, Brazil, and elsewhere.

Where, as on the Franco-Spanish frontier, and on the frontier between Russia and contiguous countries, there is no question of gauge conversion or of building new lines, axle changing is effected by various means. The system used in Transfesa vans on the Spanish frontier has been referred to in several previous issues of this journal. The method has proved effective, and traffic is reported to be moving satisfactorily.

Passenger transshipment is bound to be a nuisance. It does not, however, seem to detract from the popularity of railway travel as much as might be expected, especially where, as at some Australian, Indian, and Swiss break-of-gauge stations, the process has been well organised, and the trains on both gauges are well-appointed. The changing of bogies of passenger vehicles, as on the through services over the U.S.S.R. (5-ft.) and standard gauges between Moscow and cities in neighbouring countries, is expensive, and unlikely to be a commercial proposition; it apparently is continued for reasons of prestige.

American Welded Railway Bridge Design

THE new skew bridge of two single-track 101-ft. through type plate-girder spans carrying the Mojave Northern Pacific Railway over a diverted highway (Route 31) is the first welded railway bridge to be built in California. As in similar bridges elsewhere in the U.S.A., the 9 ft.-deep main girder webs are stiffened with horizontal plates, each spaced 2 ft. away from the parallel flanges. This arrangement seems popular in America, where the longitudinal stiffeners are considered to improve appearance and reduce web thickness. In most other aspects, this bridge is noteworthy for its similarity to British Railway practice. The track is ballasted and the cross girders, carrying ½-in.-thick low-alloy structural steel deck plating, are connected by high-strength bolts through angle-cleats to the main girder webs, and by similar bolts to large welded brackets on the insides of the top flanges.

It is noteworthy that special care has been taken to avoid intermediate attachments which might conceivably become stress-raisers in the tension flanges. The State Division of Highways, the designers of the bridge, proclaiming it to be a precedent for welded steel, say: "several features in the design of the girders are of interest in that they serve to build up the resistance of the girders and connections against inherent weakness of the welded type for railroad loading." The bridge is designed to carry live loads approximating to Cooper's E-51 on the main girders and E-53 on the floor members.

The welded girder bridge is now commonplace on British Railways where most of the new bridge girders erected since 1948 have been welded. Though the change from riveting to welding is beneficial in weight, cost, appearance and future maintenance, it has not been hurried in this country. On the other hand, the welded plate girder has been much slower in making its appearance on American railways. A possible explanation is to be found in the better range of notch-ductile steels rolled in Britain. Moreover, the failure of welded ships built in the U.S.A. during the war—asccribed to brittle fracture of the steel used in the hulls—has, no doubt, sounded a note of caution. The effect has been to retard the design of the dynamically-loaded plate girder in the States, where steel resistant to brittle fracture at low temperatures has not been easily obtainable. This tardy development in America may also be due to (a) the relatively small numbers of short spans requiring renewal since the war, and to (b) the greater depth of the steel joist rolled in the States compared with the 24-in. R.S.J., hitherto the deepest available ready-made British steel girder. Now however the opening of the new Universal Beam Mill at Lackenby in July this year has brought the 36-in. beam into commercial production, with a corresponding reduction in necessary welding.

Clean Trains

THE alleged dirty state of British Railways' passenger vehicles is a favourite topic, more particularly, perhaps, in the late summer and autumn after the holiday travel season. The number of written complaints is very small, we believe, compared with the total number of passenger journeys; but British Railways are fair game, and a good many people believe, and repeat, statements about dirty trains and adverse comparisons with those on railways abroad without seeing for themselves. It is desirable that the railways, as a public utility, should be criticised publicly so long as criticisms are fair and well-founded, and replies to them given equal publicity. It is equally desirable that well-deserved praise be made equally widely known. It is time that the widespread notion that passenger trains are "dirty," a word which requires clarification, be discussed, the facts established, and the blame apportioned for much that is known to be unsatisfactory. The travelling public, it will be found, is most to blame for interior state of passenger stock during a large part of the journey.

Most long-distance trains start from a major station after being cleaned in sidings or carriage sheds. We have seldom travelled in a vehicle, whether an ordinary coach, or sleeping, or refreshment car, which did not start clean in such circumstances. Hot water and towels are duly provided. The Pullman Car Co. Ltd. maintains its own high standards in its cars. Nor should it be otherwise. It is true that at peak traffic periods older stock has had to be pressed into service which for various reasons, such as absence of the smooth surfaces provided in new stock, is hard to keep clean; much of it, through sheer age, cannot look clean. Such vehicles are used increasingly rarely. On most days of the year, we believe, by far the most train sets which it has been possible to store in sheds or sidings are presented in good condition to passengers entraining at the point of departure. Cleaning is made easier by the equipment in new sheds, such as that at Willesden, London Midland Region. Several more sheds are under construction.

A second category of stock is that which is turned round at a principal station and must be cleaned in a relatively short period, often when standing at the same platform at which it has arrived, and will depart. Sometimes, if there has been a late arrival, the cleaners have to work whilst passengers entrain. Nobody can call this a satisfactory arrangement. It is often necessitated, however, by station layouts which preclude shunting, or a frequency of service, itself the result of public demand, which requires quick turnaround of stock. It applies mainly to shorter journeys. Two things should be said: First, traffic staff, in a desire to ensure maximum use of stock, must resist the temptation to arrange too many short turnrounds of long-distance train sets at termini; this is not an easy task in the light of the high capital cost of stock, and of operating difficulties, but the effect on passengers of having to wait for stock to be swept out, let alone that of a possible late departure, must be considered from the commercial point of view. Second, the amount not only of sweeping, but of actual cleaning, as of lavatories, done thoroughly whilst trains are being turned round in stations is often remarkable, and testifies to the efficacy of what is at best simply making-do.

Many short-distance trains, and notably those working intensive suburban and similar services, must be turned round quickly at their terminal point. Any cleaning there is quite impossible. Such sets usually start the day clean often after cleaning overnight, and are given further treatment as the day progresses, sometimes in the interval between morning and evening peaks. Their journeys are short, and there is no valid reason why they should get dirty on a short run, more particularly as most of them today are multiple-unit electric or diesel trains. This arrangement applies to all public surface transport vehicles: buses, motorcoaches, ferry steamers, and taxis, about which nobody complains.

Most British Railways' trains start clean. Very few arrive in that condition, though that is achieved on some railways overseas. The British travelling public is almost entirely to blame. In steam-hauled trains some grime and

grit is bound to enter. In cold weather, if ventilators are properly adjusted, the amount coming in is relatively small, even when inferior coal is being burnt. It is small compared with the litter which travellers in this country manage to drop in compartments and saloons in a very short time. This applies even to local trains where cigarette ends, for instance, are dropped on floors by those to whom ash trays are accessible. It is no valid excuse to say that the edibles and so on bought by the British public and consumed in trains are wrapped in more material than similar goods in other countries. A railway carriage is a public place which nobody has the right to make or leave untidy, any more than a pavement, or park, public garden, or common land should be made, or left, in that state. Unfortunately the British public has a bad record in this respect. But British Railways' trains are no worse than most public places; for a little while after departure, they are usually better, because they are more regularly and more thoroughly cleaned. How far it would be practicable to extend the employment of travelling cleaners who now operate in some longer-distance expresses, is problematical. Apart from the problem of recruitment, one may ask whether the cost would be justified, when their work is so soon undone.

The exterior of vehicles is improving, as older stock is replaced, and stock generally is repaired. Replacement of steam by diesel and electric traction is a great help. Much is being achieved with the growing number of mechanical washing plants. Unfortunately the outside appearance of many steam locomotives still leaves much to be desired. Motive power and other officers concerned are fully aware of its importance, and not for express passenger engines only; every locomotive can be an advertisement. As staff recruitment generally becomes easier, that of engine cleaners should improve, although such work is increasingly distasteful to youths brought up in an age of relatively clean industry. Great efforts are being made to keep the exterior of main-line diesel locomotives clean; this is the more difficult because of their less frequent returns to shed.

Why so many railway travellers in Britain should foul their own nests, when those in Holland, Sweden, and Switzerland, for instance, ride even long distances in trains and leave them unencumbered by litter, is past comprehension. No doubt it is largely a matter of self-discipline. It is hard to see what more can be done by the Regional managements of British Railways as regards interior cleanliness of stock. Anti-litter notices might be affixed in stock used on workings where litter is found to be worst, and posters displayed at stations. Public relations officers could with advantage state the facts clearly in letters in reply to complaints. This is probably one of the rare instances, in public relations, where attack is good defence. There is no reason why British Railways should bear the blame for the unpleasant behaviour of some of their customers.

The Setback to Railway Freight Traffic

(By a correspondent)

NO. 9 of *Transport Statistics* shows that in four weeks to September 7, freight train traffic on British Railways shrank to 16,546,000 tons, 3,199,000 tons, or 16 per cent, below 1957 carryings. Merchandise forwardings decreased by 460,000 tons, or 15 per cent, to 2,555,000 tons. There was a 25 per cent fall in minerals of 1,232,000 tons, while coal and coke accounted for only 10,332,000 tons, a drop of 1,508,000 tons, or nearly 13 per cent. Compared with the ninth period of the busy year 1951, the railways lost the carriage of fully 5,000,000 tons; 37 per cent of the 1951 merchandise disappeared, along with a fifth of the mineral and coal class traffic.

The advance statement of traffic receipts for four weeks to October 5 did not improve the outlook for the last quarter of the year. Passenger receipts were 6 per cent higher, but receipts from freight (including parcels, mails and c. & d. services) were lower by £3,603,000, or

13 per cent. For 40 weeks to October 5 the decrease in freight revenue was £20,170,000, or 7.5 per cent, so that the financial situation is deplorable.

OPERATING STATISTICS

This number of *Transport Statistics* furnishes operating results for 12 weeks to September 7, when there was a slump in traffic volume. The railways carried 48,159,000 tons, a decrease of 8,595,000 tons, or 15 per cent, from 1957. They worked 3,699 million ton-miles, a 14 per cent decrease of 620 million from the year when the lowest ton-mile volume since nationalisation was produced—2,024 million, or close on 9 per cent, below the 1951 all-time high.

With such a sparse traffic, the railways reduced freight train miles by 2,188,000, or 7.5 per cent, to 26,932,000 and cut freight train hours by 321,000, or 10.5 per cent, to 2,738,000. An advance in steam freight train speed from 9.5 miles an hour to 9.9 was rather feeble, in comparison with returns of 11.1 miles an hour from Scotland and 10.33 from the North Eastern Region. The wagon load at starting point of 9.4 tons was somewhat lower, owing to the light loading of merchandise in all Regions except the North Eastern, which raised its load to 4.4 tons against the general average of 3.7. The freight train load diminished everywhere, the all-line average of 137 tons being 11 tons lower than a year ago.

The output of freight train working for the whole system, measured by ton-miles produced in a train hour, declined by 52 points to 1,098. The Eastern output of 1,210 was the highest regional result. The Eastern train load, though 17 tons less than last year's figure, was the heaviest, but its steam trains moved slowly at 9.53 miles an hour and the rate of progress of its electric freight trains retrograded to 9.42 miles an hour. In spite of its better mobility, the Scottish Region, with a light train load of 93 tons, turned out 855 ton-miles in a train hour, compared with 894 last year.

During the 12 weeks, the railways must have had a large surplus of wagons. The number forwarded under load was 5,536,000, a decrease of 898,000 (14 per cent). Loaded wagon miles were down by 75,300,000 (13 per cent) and empty wagon miles were 27,972,000 fewer (11 per cent). The number of wagon miles worked in a train engine hour dropped from 222 to 216; the Western Region reported little change, but the Eastern and North Eastern recorded a decrease of 11 wagon miles to 227 and 221 per train hour respectively.

ROLLING STOCK

At September 7 the railways owned 16,427 steam locomotives, 2,989, or 18 per cent, being under repair. Of 203 diesels (mechanical and hydraulic), 24 were unserviceable (11.8 per cent) and 98 diesel-electrics were also out of action, 11.6 per cent of a stock of 842. As 59 of the first type and 187 of the diesel-electrics went into traffic this year, the under-repair percentages are exceedingly high. The same comment applies to the stock of 2,115 diesel multiple-unit passenger coaches. At September 7 the number under repair was 161, or 7.6 per cent of the stock. No less than 768 of these expensive carriages came into service this year and the rest of the stock is comparatively new. The American railroads have a "know-how" for keeping diesels of all kinds at work almost every day and all day long. The sooner our railways discover the secret, the better.

The number of freight vehicles needing repair rose from 61,600 in March to 67,180 at September 7, or 6.4 per cent of the stock of 1,103,070. The number of wagons available for traffic was then 975,580 against 1,015,400 a year earlier. At the present juncture the loss of 39,820 wagons may not matter, but there is always a risk in letting cripples accumulate unduly.

NUMBER OF RAILWAY EMPLOYEES

At September 7 our railways employed 560,700 people, about 12,800, or 2 per cent, fewer than in December, 1957. In present conditions many of the staff on the paybills cannot be doing a normal day's work. The

American railroads were faced with a similar situation in the fall of 1957 and had to reduce expenditure drastically. The average number of employees in the good year 1956 was 1,042,660. In 1957 the number decreased to 986,000 and fell to 844,400 in August, 1958, nearly 17 per cent below the 1957 level at the same date. The trade unions appreciate the necessity of placing staff on furlough in times of emergency. The practice made it possible for the railroads, as a system, to operate to July last at a ratio of 82 per cent. For individual railroads the ratio for the first seven months of this year varied from 89 per cent on the Pennsylvania and 88 per cent on the New York Central to 75 per cent on the Chesapeake & Ohio and Santa Fe, 73 on the Norfolk & Western and 70 on the Rio Grande. A purely coal road, the Virginian, continues to work at a ratio of 54 per cent. There is much to be said in favour of the American policy of publishing a periodical statement of railway revenues and expenses.

Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

Preserving G.W.R. Diesel Railcars

October 27

SIR,—I refer to the letter which appeared in your issue of October 24 and am pleased to be able to inform Mr. William F. Bolton, and other interested readers, that one of the early G.W.R. diesel railcars (No. 4), which was withdrawn from traffic at the beginning of this year, has already been retained at Swindon with the view to possible preservation and eventual inclusion in a transport museum.

Yours faithfully,

C. J. RIDER,
Public Relations & Publicity Officer,
British Railways, Western Region

14, Bishops Bridge Road Paddington, W.2

Railway Wage Structure Review

October 21

SIR,—In your issue of October 17 you state: "It would appear from reports in the Press that the union leaders have been anxious to transform an inquiry into the structure of railway pay into a review of railway wages; that was not the intention when the offer was made nor is it reasonable in the light of the Tribunal's finding or the settlement which was reached."

Railway Staff National Tribunal Decision No. 21 of April 10, 1958, contained the following paragraph:—

"The evidence before us shows that the basic rates of staff covered by the present claims are low in comparison with those cited to us as applying in other nationalised industries, public services and certain private undertakings."

Your issue of May 16, 1958, contains the following account of the offer of the Commission in so far as it related to the foregoing paragraph:—

"With regard to the views expressed in the report of the Tribunal relating to railway wages and salaries the Chairman of the Commission said he would be ready to discuss with the trade unions at an appropriate time the setting up of an inquiry to make a comprehensive examination of the wages structure. This could be an independent or an internal inquiry. The terms of reference would be agreed."

You will observe that the examination of the wages structure which was offered was to be a "comprehensive" one, and so far from any transformation of the Commission's original offer, I can assure you that, right from the commencement, the unions have never been led to believe that the scope of the inquiry was to be in any way limited.

Yours faithfully,

W. J. P. WEBBER
General Secret

Transport Salaried Staffs' Association,
Walkden House, 10, Melton Street, N.W.1

THE SCRAP HEAP

"Progress Chasing" on the G.E. Line

The Great Eastern Line of British Railways, Eastern Region, earlier this year instituted its "progress chasing" competitions for children. The object was to record examples of railway modernisation observed when travelling on the G.E. Line. Over 4,000 boys and girls competed.

Prizes were presented to 48 boys and two girls by Mr. W. G. Thorpe, Line Traffic Manager, at a recent ceremony in British Railways ss. *Amsterdam* at Parkeston Quay, Harwich. The proceedings included luncheon on board; a railway "quiz" conducted by Mr. Cecil J. Allen, one of the judges; a film show; a tour of the ship; and a journey back by diesel train.

Back in Lancashire & Yorkshire Livery

Horwich Works, in the London Midland Region, has repainted in Lancashire & Yorkshire Railway livery, black with white and red linings, with the L.Y.R. crest, the first locomotive built at Horwich, in 1889. The engine is a 2-4-2 tank built by the L.Y.R. to the design of John Aspinall, Chief Mechanical Engineer, who later became General Manager of the railway and received a knighthood. It was the first of 270 of the "K2" class passenger tank locomotives with four wheels coupled and a radial axlebox at each end. These engines in their prime worked main-line expresses. A feature of the class is the water pick-up gear, which operates in both directions and was originally hand-operated. The lowering and raising of the scoop was later accomplished by the Aspinall vacuum arrangement, which is still fitted to No. 1008, the original number now restored to the engine.

The locomotive had been scheduled for preservation by the British Trans-

port Commission some years ago, and its restoration has been carried out by Mr. J. H. Scholes, the Curator of Historical Relics, B.T.C., and Mr. E. R. Brown, Works Manager at Horwich. It is to remain at Horwich Works for the time being.

Fare Cop?

A bogus ticket examiner was caught red-handed on the platform at Howrah terminus, Calcutta. . . . He was found cheating the passengers in the up Puri express. . . . Masquerading as a travelling ticket examiner, he used to collect current tickets from the passengers in the train, giving them old and used tickets in return after "checking." The tickets thus collected from the passengers were presented for refund on the pretext that the holders had not travelled. An irregular necktie (T.T.Es. wear a particular type of tie) . . . was primarily responsible for his exposure. It aroused the suspicion of a supervisor and his assistants and led them to challenge the culprit.—*From the Eastern Railway of India "News Letter."*

Station Gardeners

The railway station at Radlett, which is tended by two porters, has been judged the best kept in the London Midland Region for the third successive year, and here is occasion for congratulations and three hearty cheers. . . . The commuters, timing their dash up the straight to a split second, are hardly likely to put off their dedicated task of climbing on board the 8.33 in favour of a stroll down the platform to admire the layout of a bed at the end of it. The traveller who comes on the scene just as the tail-end of his quarry is vanishing round the bend certainly has time to spare, but it is doubtful whether

he will be in a state of mind to appreciate the efforts made on his behalf. . . . There is, it is true, comfort for the two gallant gardeners of Radlett in the thought that the anonymous thousands who flash past every day must take pleasure . . . in the colour and prettiness of their station, but anonymous they remain and their gratitude is unexpressed.—*From "The Times."*

Seventeen Square Inches per Passenger

We have had occasion more than once to direct attention to the petty shop-keeping sort of spirit which inspires the management of the Bombay line; and the Government will, we are persuaded, have to interfere before long, for the protection of the public. The crowding of third class passengers into carriages without seats, or due protection from the weather, may be a matter of very little consequence for a journey between Byculla and Mahim, but ought to be put a stop to at once upon the Wassind and Campoolee lines. The new third class carriages contain an area of about 140 feet, and we are informed that the company design them to carry 70 passengers each. That is to say, it is thought sufficient to allow each third class passenger standing room of about 17 inches square, during a journey of 40 or 50 miles. Again, these carriages are without any side protection from the rains, which flood them in five minutes, when pouring heavily.—*From "The Times of India," July 17, 1858.*

No Grumbles at Mumbles

(Shares are in demand of Swansea & Mumbles Railways Limited and of the Mumbles Railway & Pier Company)

Despite diplomatic fumbles,
Politicians' twists and tumbles
And a few nostalgic rumbles,
There will be no groans or grumbles
Down at Mumbles, in South Wales.

Railways may be in the red,
Branch lines have been put to bed,
Many last words have been said,
But at least they're not quite dead
Down at Mumbles, in South Wales.

Values undergo distortion
And experience contortion,
But, whate'er the fates apportion,
Things are still kept in proportion
Down at Mumbles, in South Wales.

So restrain the furtive tear
For the Railway and the Pier,
For at any rate it's clear
There is consolation near
Down at Mumbles, in South Wales.

There, it seems, somebody cares
In these days of shrinking fares;
Though extinction's gulf now stares,
Someone wants to buy their shares
Down at Mumbles, in South Wales!

A. B.



The first locomotive built at Horwich Works, in 1889, restored and repainted in Yorkshire & Lancashire Railway livery

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW SOUTH WALES

Northern Line Electrification

Extension of electric traction northwards beyond Hornsby is proceeding satisfactorily. It should be completed as far as Cowan, 10 miles, by November, 1958. There, the suburban multiple-unit services will terminate, but similar electric equipment will reach Hawkesbury River in May and Gosford, 30 miles from Hornsby, in December, 1959. Beyond Cowan, passenger train services will be provided by existing steam coaching stock hauled by electric locomotives—as on the Western main line between Penrith and Lithgo—or inter-urban multiple-unit sets now on order. For goods and passenger trains proceeding beyond Gosford, electric locomotives will be changed for steam or diesel at that station, and vice versa.

EAST AFRICA

Through Freight Working

Through running of long distance goods trains between Mombasa and Nakuru, which started experimentally in March with one train, has now been increased to three trains. Each locomotive and crew is scheduled to do eight trips a month and 11 locomotives are used in the link. Each train operates the 886 miles return journey with the same locomotive, a "59" class Beyer-Garratt, and the same two crews. Through working connections at Nakuru branching to Kisumu and Kampala give transit times from Mombasa of 48 hr. to Kisumu, 588 miles, and from 65 to 71 hr. to Kampala, 876 miles, with correspondingly shorter transit times to main depots en route.

Besides providing quicker transit for through loads, these trains reduce yard

working at Nairobi and Nakuru and at all other points west of Nakuru.

Cheaper Travel

The East African Railways & Harbours are introducing, experimentally, second class sitting accommodation on certain of their passenger trains. This new arrangement is to come into operation on November 1 on the daily second and third class passenger train between Mombasa, Nairobi and Kampala, and the daily passenger train between Tanga and Moshi. The seating accommodation, for which reservations can be made in the normal way, will be on the basis of eight seats to a second class compartment. The fare for this type of travel will be 12 cents a mile instead of 16 cents a mile for the ordinary second class accommodation.

RHODESIA

Cement to Heany Doubling

Work has been completed on the doubling of the eight-mile line between Cement and Heany Junction, near Bulawayo, at a cost of some £186,000.

In addition to permanent way material the cost includes such items as electric signalling, earthworks, culverts, and bridges. Where the new double track crosses the Gokwe River a second bridge has been erected to carry the additional track; previously this bridge spanned the Nega Nega River in Northern Rhodesia. The span was reduced from 75 to 50 ft.

INDIA

Shortage of Steel

More than 900,000 tons of steel was supplied to the railways in 1957-58 against their requirements of 1,000,000.

This shortfall impeded construction of certain new railway lines. The Khandwa-Hingoli section of the Central Railway and the Bourkela-Manoharpur section of the South Eastern Railway were affected. Recently work on the Khandwa-Lingoli line was still delayed.

Telegrams in Hindi

There are 47 stations on the Indian Railways where facilities exist for sending telegrams in Hindi, eight stations on the Central and 39 on the Northern Railway. It is proposed to provide facilities at further stations during the current year.

CANADA

Track Laying Record

A crew of 200 men recently set a new track laying record for Canadian National Railways at Duck Lake, Saskatchewan. The crew recovered and replaced 2.15 miles of track to surpass the daily average of 1½ miles. The old rails were replaced by 582 new 85 lb. lengths, each 39 ft. long.

Operation of "Continental"

The Canadian National Railways has reversed its recent decision to eliminate one of its trains between Montreal-Toronto and Vancouver during the off-peak season. It was announced in September that operation of the "Continental" would be discontinued and only the "Super Continental" run until May, when the two-train service would be resumed for the summer months.

Since the announcement was made, public reaction to the proposed curtailment of service and the effect on future reservations led the C.N.R. to reconsider its decision.

UNITED STATES

Long Flats for "Piggy-Back" Service

The Atchison, Topeka & Santa Fe Railroad has put in service the longest wagons that have yet run on any American railway. They are flat wagons 88 ft. long and 9 ft. 6 in. wide, designed for two 40-ft. road trailers in "piggy-back" service. They are all-welded, with centre sills formed by two 30-in., 132 lb. per yd. steel beams, and side sills formed by 12-in., 35-lb. channels. Rubber draft gears, swivel couplers and dual "AB" brakes are fitted. The securing devices for the trailers are attached to the trailer king pin in each case. The maximum carrying capacity of each wagon is 51 tons, and the centre load limit is 34½ tons.

Another New York Central Skyscraper

The New York Central and New York, New Haven & Hartford Railroads are having some success in their



Down goods train between Limuru and Kikuyu, E.A.R. & H., headed by a "59" class Beyer-Garratt locomotive

attempts to reduce the heavy deficit on the operation of the Grand Central Terminal in New York City. In the July 25 issue mention was made of their joint lease of a plot of 132,000 sq. ft. adjacent to the terminal for the erection of a 50-storey skyscraper; another square block of land on Park Avenue has now been leased for erection of a 53-storey office building, estimated to cost \$45,000,000. The plot is bounded by Park and Lexington Avenues and 47th and 48th Streets, and the aggregate rental to be paid over 33 years is to be \$24,000,000. This is now the fifth re-development scheme to be carried out for railway-owned land on Park Avenue.

BRAZIL

Locomotive Imports

Of the 196 diesel-electric locomotives purchased in U.S.A. for account of the Eximbank \$100 million loan, 74 had been distributed among the incorporated railways by September 30. During that month two more, equipped with six-cylinder, 900 h.p. engines, were unloaded at Recife for R.F. do Nordeste, while 13 others were awaiting shipment in New York; five have been allocated to the Ceara Railway and 25 to the Nordeste. Earlier this month seven of the same type, part of a batch of 13, were delivered, four for the Leopoldina and three for the E.F. Noroeste; the latter line now has 38 of these locomotives in service and reports a four-fold increase in carrying capacity over certain sections.

The first of seven BO-BO 3,000-h.p. electric locomotives from Germany have been delivered to the Central of Brazil and will be used on the mountain section between Rio and Volta

Redonda. The remaining six are due to arrive in November.

Diesels for Noroeste Railway

The Noroeste do Brasil has received three Baldwin 1,600-h.p. diesel-electric locomotives, transferred from the Sorocabana Railway, and 11 of the 45 diesel-electrics ordered from General Motors. These are of the "G-12" and "G-8" classes, costing approximately 9 million cruzeiros each. They use a special oil, Talona R. Oil 40, to comply with General Motors specifications.

The carrying capacity of the railway has been increased by 9,000 tons daily.

Diesel Haulage on Bragantina Railway

The metre-gauge E. F. Bragantina, 65 miles long, formerly a branch of the Santos-Jundiaí Railway, with which it connects at Campo Limpo, is replacing steam by diesel-electric traction; 600 h.p. locomotives are being transferred from the Sorocabana Railway. The Bragantina is handicapped in serving a district near the city of São Paulo, where much of the passenger and goods traffic is moved by road. The line, hitherto indifferently maintained and equipped, has been operating at a relatively heavy loss.

ITALY

Closing of Lines

Proposals for closing two lines in northern Italy have met with strenuous local opposition. One of the sections is the State Railways standard-gauge line from Rimini to Ravenna, 31 miles to the north west of Rimini. The line extends further north-west for another 39 miles before connecting at Ferrara with the Bologna-Venice main line. The entire line is both steam and railcar worked. The proposal to close

the Rimini-Ravenna portion was made not by the State Railways but by the local hotel owners' association which objects to the obstruction to road traffic caused by the many level crossings in and near Rimini.

The other line is the nine-mile, standard-gauge branch between Saronno and Seregno of the Nord Milano suburban lines. The branch is still steam-worked. Opposition resulted in postponement of the closure, arranged for September 1, despite the Nord Milano company's undertaking to substitute bus services.

JUGOSLAVIA

Electrification

In connection with the electrification now in progress, the State Railways placed an order for 50 electric locomotives. Ten are to be built at Genoa by Ansaldo and 40 in Yugoslavia under the supervision of Ansaldo staff. All 50 locomotives will be of 3,000 h.p. with maximum speed of 75 m.p.h.

The 40 to be built in Yugoslavia will be constructed at the Djuro Djakovic Locomotive & Wagon Works at Slavon-ski Brod. Motors, transformers and other components and installations will be supplied by the Rade Koncar Works, of Zagreb; Electro-Srbija, of Belgrade; and Svijetlost of Rijeka.

The first two locomotives of the 10 being built at Genoa are to be delivered before the end of the current year, and the remaining eight during the first four months of 1959. The Yugoslav industry has undertaken not to supply any locomotives of the type concerned to foreign countries. Staff from the works concerned in Yugoslavia are to attend specialisation courses at Ansaldo in connection with this order.

Publications Received

On the Old Lines: Locomotives Round the World. By Peter Allen. Second edition. London: Cleaver-Hume Press Limited, 31, Wrights Lane, Kensington, W.8. 8½ in. x 6½ in. 192 pp. Illustrated. Price 25s.—The first edition of this enjoyable, informative, and well produced book was the subject of an editorial article in our issue of January 10, 1958. Mr. Allen has taken the opportunity of the publication of the second and enlarged edition to include illustrations of Mexican locomotives, and an "African postscript" with his observations, in his own inimitable style, on railway journeys, locomotives, and rolling stock in South Africa, Rhodesia, Mozambique, and the Sudan. As before, he has singled out, and described with great economy of language, what is of outstanding interest, but not at all obvious, such as the South African Railways 2-ft. gauge Garratt in South-West Africa, and the Moçambique Railway 2-10-2; and he again has put his finger, for an instant, on essential problems, such as the

African gauge problem. The printing on art paper has enhanced the reproduction of the many excellent photographs.

Liquefied Petroleum Gas Installations.

—A brochure which gives details of various types of liquefied petroleum gas installations for which the company has been responsible has been issued by W. C. Holmes & Co. Ltd., P.O. Box No. B.7, Turnbridge, Huddersfield. It describes the advantages of L.P. Gas installations, design features of storage vessels, and typical applications of the gas. Copies of the publication, No. 66, may be obtained on application to the company.

The Factories Acts, 1937 and 1948.—The United Steel Companies, recognising that modern industry demands of management a good working knowledge of the Factories Acts and related legislation, issued in 1945 a summary of the Acts, bringing together in a handy reference booklet the main provisions applying to the iron and steel industry. This summary has been re-

vised and brought up to date by the company's safety consultant, Mr. N. H. Jones, an ex-Deputy Chief Inspector, who served with H.M. Factories Inspectorate for 42 years. A great deal of the contents, more particularly, perhaps, the section concerned with safety, will be of interest to all concerned with works, whether on railways or supplying material to them, not only in the United Kingdom, but overseas. Copies may be obtained, free of charge, from the Welfare Officer, the United Steel Companies Limited, 17, Westbourne Road, Sheffield, 10.

Malleable Iron by Hale.—A 16-page illustrated booklet issued by Hale & Hale (Tipton) Limited, of Dudley Port, Staffs., describes the characteristics of blackheart malleable iron and methods used in the manufacture of castings, with reference to the company's plant. There is a useful summary of applications of malleable iron, including some in railway electrification. The description is succinct and clear, and the photographic illustrations well chosen and reproduced.

Collapsible Light-Alloy Container

General-purpose design collapsing into small space for returning empty



Container erected, showing body side lever in "erect" position

A PROTOTYPE general-purpose light-alloy container for British Railways being displayed at Battersea Wharf Goods Station, S.W., at the freight transport exhibition arranged by British Railways and British Road Services, is designed to collapse into a small space for returning empty. When collapsed it occupies approximately one-quarter of the space taken up by the erect container.

The dimensions are:—

	Over framing	Interior
Length	16 0 ¹ / ₂	15 8 ¹ / ₂
Width	7 5 ¹ / ₂	6 6
Height	9 0 ¹ / ₂	6 4 ¹ / ₂
Cubic capacity ..	648 cu. ft.	
Carrying capacity ..	5 tons	
Tare weight, prototype ..	1 ton 11 cwt.	
" " production ..	1 ton 7 cwt.	

Collapse and erection are effected without special tools. The container collapses within its base and there are no bolts, nuts, or other loose parts. It

is weather-proofed with Neoprene sealing strips at all joints and is inter-

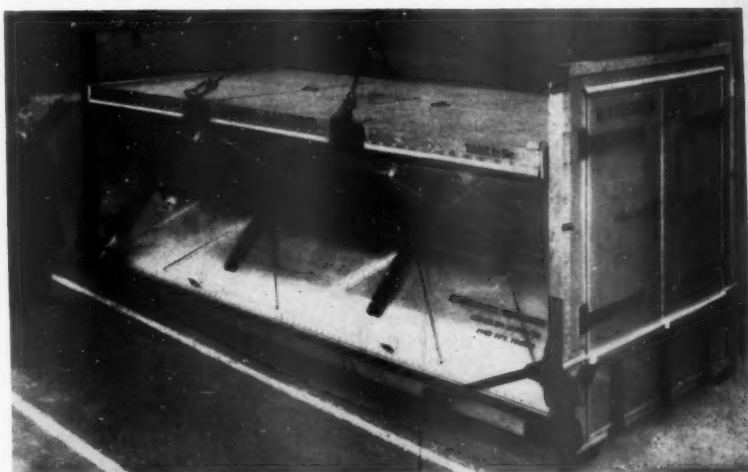
locked against unauthorised entry. The robust construction is intended to meet conditions encountered in transport by rail, road, or sea.

Lifting is with a four-chain sling from the slinging eyes on the cant rail or by fork-lift truck.

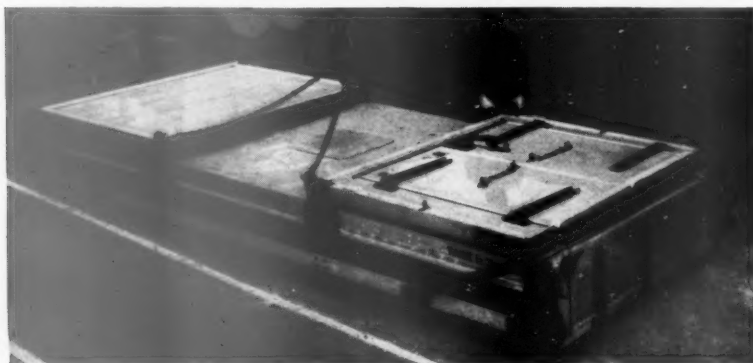
Collapsing from Erect Position

The end door key is removed after Customs seal has been broken. Doors can then be opened by the normal door locking bar. The lever in the roof at the door end is then pulled downwards and this action pushes the body ends outwards 1 in. at the roof. This outward movement frees spigots in the body side from their sockets in the body end, which in the erect position rigidly connect the body sides and body ends one with the other.

A simultaneous action of this roof lever is to withdraw the interlocking bars in the body sides clear of the body side collapsing cams, thus permitting the body side collapse levers to be operated. The folding bracket at the top of each door, which projects under-



Body sides hinging inwards with weight taken by sling



In closed position, showing doors folded in

neath the roof, is a safety precaution to ensure that the container cannot be collapsed whilst doors are open.

The end doors are then closed and the body side levers thrown to the collapse position. This action breaks the body sides at the hinges and allows them to jack-knife inwards until the weight of the collapsing parts is taken by a four-chain sling suspended from a crane or high-lift fork truck.

The roof and body sides are then lowered until they fully collapse on to the floor. The body ends will now be standing more or less vertical, but are prevented from falling by a foot-operated bracket. The ends are then

(Continued on page 540)

Single-Unit Railcars for British Railways

For suburban operation, with centre gangway and side doors: standard type engines and transmission

DESIGNED for single-unit operation, with second class seating for 65 passengers, a batch of 20 diesel cars was recently delivered to British Railways by the Gloucester Railway Carriage & Wagon Co. Ltd.

These Derby-designed cars are now working in the Birmingham and London areas of the Western Region. Although seating is of the open saloon type, a separate entrance door is provided for each group of 10 seats. These are arranged facing in compartment style but with a central gangway; seating capacity for 20 is provided in the non-smoking saloon.

The guard's and luggage compartment is fitted at each side with a double door, half of which opens inwards and half outwards. Luggage capacity is 25

cwt. Moulded fibreglass is used for the canopy over the driver's cab at each end.

Leading dimensions are as follows:—

	Ft.	In.
Length over body	64	6
Width over body panels	9	0
Height—rail to top of roof	12	4½
Centres of bogies	46	6
Bogie wheelbase	8	6
Wheel dia.	3	0
	Tons Cwt.	
Tare weight	36	6

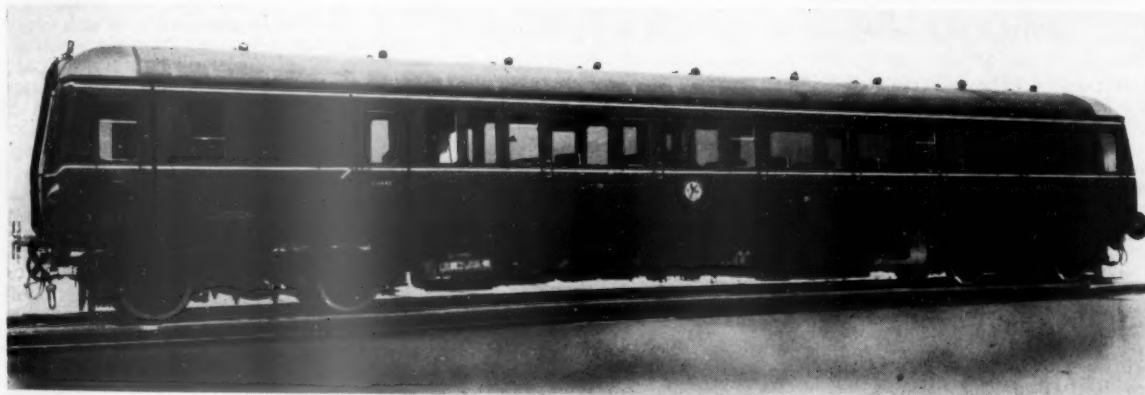
Interior Layout

Seat base springs with foam rubber pads and squabs, covered in patterned cut moquette, are fitted to the Lace Web tubular seat frames. Facings are in blackberry Lionide with fawn piping.

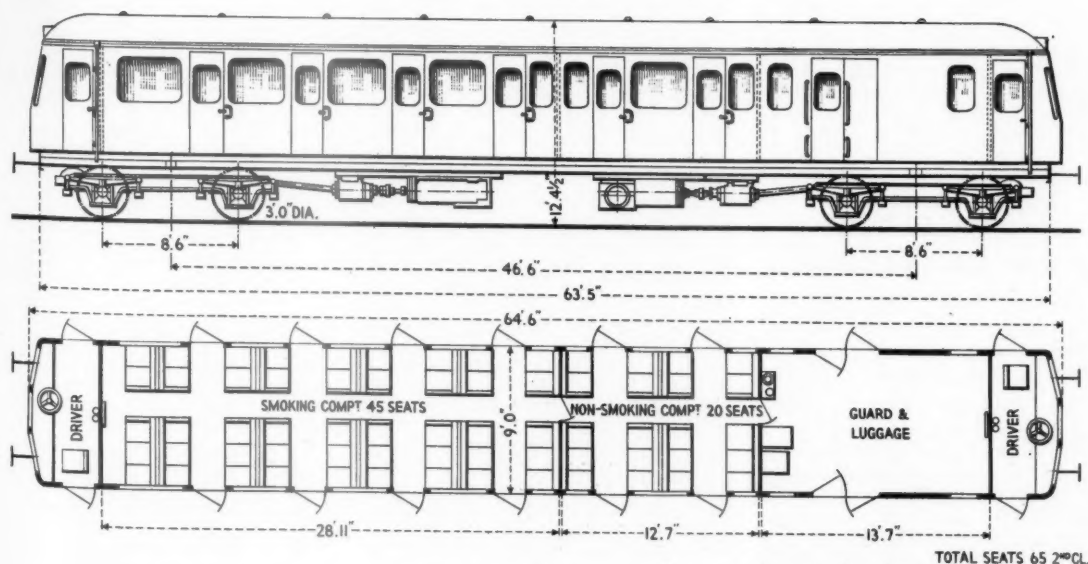
The bodyside panels are in Formica-faced glossy bleached mahogany. End

partitions are in Formica-faced straight grained walnut. The non-smoking compartment is divided off by a Formica-faced block-board partition, with full-width glazing above seat level. The saloon floor covering is fawn linoleum. Tubular anodised aluminium parcel racks are fitted above each window, and on the compartment division. Ash trays are attached to the door side pillars. The ceiling panels are in off-white eggshell semi-matt finish. In the combined luggage and guard's compartment is fitted the usual first aid, fire-fighting and emergency equipment. This compartment is painted fawn.

The full-width driving cab at each end is equipped with the standard diesel car control equipment, housed in a flat-top desk type cubicle. A.T.C. equipment is



Derby-designed railcar for single-unit suburban services



Side elevation and plan showing double-end arrangement of driving compartments.



Seating is back-to-back with an entrance for each bank of seats

incorporated. The cab roof and ceiling are fibreglass. Entrance doors are fitted at each side and a sliding door gives access to the saloon. The tubular commode handles are used as drain tubes for the roof gutters.

Besides the Trico-Folberth screen wipers, a hand-pump operated water spray unit is fitted. The driver's seat is fully adjustable and an auxiliary seat is positioned on the opposite side of the cab. Folding blinds are fitted to the cab bulkhead windows and sunblinds at the driving windows.

Body Construction

The body is of all-welded construction, with top-hat section vertical pillars and Z-section rails. Limpet asbestos is sprayed on the inside of the 16 g. steel bodyside and roof panels. Beclawat full-drop windows are fitted to the cast aluminium doors. Fixed windows, without ventilators, are fitted between the doors. Air extraction through the roof is by

standard British Railways type ventilators. The ceiling panels are in $\frac{1}{4}$ -in. thick Laconite. The floor panels are of composite construction comprising $\frac{1}{8}$ -in. aluminium, $\frac{1}{4}$ -in. asbestos and $\frac{1}{4}$ -in. plywood. These panels are secured by Cyc-Arc studs and recessed barrel nuts. In the luggage compartment the floor surface is a bitumastic compound laid on a dovetail section floor sheet, with aluminium chequer dumping plates inside the doors.

Bogies and Underframe

The underframe is a welded assembly of double channel longitudinals and crossmembers, with rolled channel section solebars. Between the bolster positions the frame is reinforced by additional longitudinal channel members with gusset attachment. Standard type drawgear and Oleo-Pneumatic light steel buffers are fitted. Bogies are of the conventional swing bolster diesel car type with spring side control and side fric-

tion blocks. The axleboxes are British Timken roller-bearing pattern. Smith-Stone speedometer and mileage recording equipment is incorporated.

Gresham & Craven quick-release vacuum brakes operated by 21-in. vacuum cylinders are fitted. All brake piping is in aluminium alloy. Two Clayton exhausters are belt-driven from the gearbox input shaft. The vacuum reservoir is 15 cu. ft. capacity. A vacuum brake valve is fitted in the guard's compartment, with handbrake operation in each driving cab.

Power equipment is two B.U.T. "A" type diesel engines, each of 150 b.h.p., driving through standard type diesel car transmissions. Air pressure for the electro-pneumatic controls is supplied by an engine driven 10 cu. ft. Clayton compressor. Built-in Graviner automatic fire protection equipment is fitted. The engine exhaust pipes are taken externally at one end of the car up to roof level, in front of the driver's cab. Engine fuel is carried in two 98-gal. tanks slung between the two power units. Two Smiths combustion heaters, both delivering fresh air for car heating, are mounted longitudinally on each side of the frame between the engine and bogie. A 35-gal. fuel tank is provided for the heaters. British Railways lead acid type A2 batteries of 440 A.-hr. capacity are charged through a germanium rectifier by a belt-driven C.A.V. alternator.

Sub-contractors include the following:—

Power units, transmission, and control equipment	British United Traction Limited
Vacuum brakes	Gresham & Craven Limited
Exhausters and air compressors	Clayton Dewandre Co. Ltd.
Lighting generator and rectifier	C.A.V. Limited
Light fittings	J. Stone & Co. (Deptford) Ltd.
Heaters	S. Smith & Sons (England) Ltd.
Axleboxes	British Timken Limited
Hydraulic buffers	Oleo-Pneumatics Limited
Fire protection equipment	Graviner Manufacturing Co. Ltd.
Asbestos insulation	J. W. Roberts & Co. Ltd.
Wheels and axles	Taylor Bros. & Co. Ltd.
Springs	English Steel Corporation Ltd. and George Turton, Platts & Co. Ltd.
Rolled steel sections	Ayrshire Dockyard Co. Ltd.
Linoleum	James Williamson & Son Ltd.
Doors	Lightalloys Limited

Collapsible Light-Alloy Container

(Concluded from page 538)

lowered on to the top of the roof and fastened.

Erection

To erect from the collapsed position, the ends are raised to the vertical position where they are automatically held. The foot-operated bracket used when collapsing operates automatically when erecting.

The roof and sides are then lifted by crane until the whole container weight is taken up. The body sides collapse/erect levers are then operated, pulling

the body sides into the vertical plane.

The end doors are opened. The fouling brackets make it safe to enter the container and push the roof lever into the horizontal position; this pulls the body ends to the body sides and rigidly locks them by the spigots and sockets referred to above.

Interlocking Levers

The interlocking levers are also operated by this same action thus ensuring that the body size collapse/erect levers lock in the erect position.

The doors may be closed, locked and sealed in the normal manner.

Reference has already been made to

the interlocking of the body side levers and to the fouling brackets on the end doors. A further safety device ensures that when erecting the container it is impossible to lock and seal the end doors until the interlocking lever inside the roof is in the closed position.

Further Developments

Further developments under consideration include the use of torsion tubes at the body hinge joints to collapse the unit without the use of a crane.

The container has been patented by the Transport Development Department of Tube Investments Limited.

Extension of the Southern Province Railway, E.A.R. & H.

Construction of line from Chilungula to Masasi using secondhand track

WITH the laying of the last rail at Masasi Station on September 26, the construction of the new railway from Chilungula to Masasi in the Southern Province of Tanganyika, East African Railways & Harbours, came near to completion.

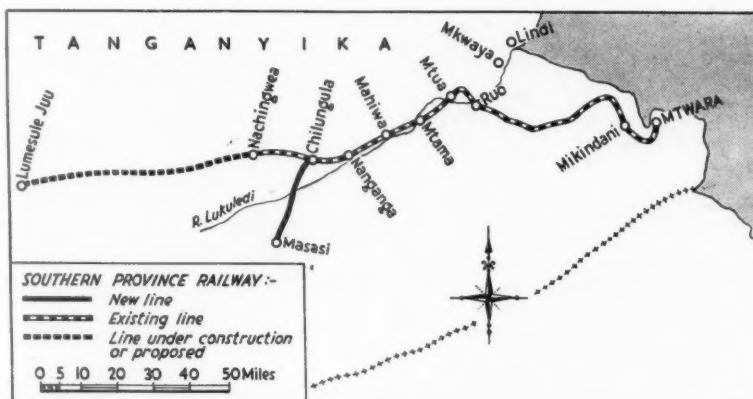
The extension of the Southern Province Railway from Chilungula Station to the important centre of Masasi was mooted in the early part of this year, and final approval to proceed with construction was given at the beginning of April. To take advantage of the 1958 crop season it was aimed that the railhead should reach Masasi by mid-October, but this left only six months for the planning and execution of the work.

The length of the new line amounts to some 24 miles. It has been built in secondhand railway track. To carry out the construction it was necessary to transport heavy earth-moving plant and vehicles over long distances to the site. No time could be spared for the building of temporary construction housing, so all staff and labour have lived under canvas.

In addition to staff and plant, everything had to be transported. In all some 3,000 tons of material moved by sea down the coast to the port of Mtwara.

Recovered Track

The track materials were gathered from widely spaced sources. One lot came from track re-laying works near



Southern Province Railway, showing extension from Chilungula to Masasi and proposed extension to Lumesule Jui

Jinja, another lot, old German rail, came from the Tanga to Korogwe line.

The main movement of stores by sea was carried out by a landing craft vessel operated by E.A.R. & H., and for the past few months this vessel has worked in an all-out effort to maintain a continuous shuttle service between the ports of Mombasa, Tanga, and Mtwara. Heavy plant was carried by sea from Kenya to the bay of Mikindani lying north of Mtwara and landed over the beach. Thence, plant moved on rail over the Southern Province Railway up to Chilungula.

The advance party of surveyors and works staff moved on site in the middle of May, when pegging out of the new line began. Meanwhile a labour force was built up and machines were put to the task of clearing access roads and the new formation.

Line Construction

By June the earthworks began to push forward. Platelaying commenced following up earthworks in July. Construction work continued through August and by the middle of September the last earth-moving machine reached Masasi Station, to be followed a few days later by the platelaying gangs.

On September 26, only four months from the placing of the first peg in the new line, the last rail was laid at Masasi in the new railway line from Chilungula, and the first construction train drew to a halt at the new terminus, 140 miles from Mtwara.

The new line was opened for the carriage of traffic under construction conditions on October 14, and on November 1, will be formally opened for traffic under normal operating conditions.

New Passenger Services

With the formal opening new passenger services will be brought into operation throughout the whole of the Southern Province Line. A daily railcar will be introduced in each direction between Mtwara and Masasi, departing from Mtwara at 7.45 a.m. and arriving at Masasi at 3 p.m., and from Masasi at 7 a.m., arriving at Mtwara at 2.30 p.m.

At the same time a third class service will provide a daily feeder train between Nachingwea and Masasi; this will connect with both the up and down railcars at Chilungula and will thereby give a through daily service in both directions between Mtwara and Masasi and between Mtwara and Nachingwea.



Track laying near the end of the line just north of Masasi

Overcoming Breaks of Gauge

Equipment devised by Swiss railways to facilitate through goods traffic between standard- and narrow-gauge lines



Drop-girder wagon conveying cable weighing 35 tonnes, for the Bernina-Diavolezza cableway; the changeover from standard (Swiss Federal) to metre (Rhaetian) gauge bogies at Landquart took 15 min.

THE performance of railways in many parts of the world has shown that very heavy loads can be conveyed satisfactorily on lines of less than standard (4-ft. 8½-in.) gauge. The main difficulty is transshipment at breaks of gauge. It is acute in Switzerland, where, apart from tramways and purely private internal industrial lines, there are some 2,080 miles of 4-ft. 8½-in. gauge and 840 miles of narrow (including metre) gauge, with a transshipment point for every 43 miles of standard gauge. There are two examples of mixed-gauge open track in Switzerland, between Zollikofen and Worblaufen, near Berne, and between Wohlen and Bremgarten West, in the Zürich area.

The problem of transshipment is particularly acute in the case of the metre-gauge Rhaetian Railway, the largest undertaking of less than standard gauge in Switzerland. We are indebted to Dr. Hans Zitt, Operating Manager of the railway, for the information given below relating to Switzerland, and for the illustrations.

The chief difficulties are loading gauge restrictions and variations in buffing gear and coupling equipment. The Swiss narrow-gauge lines have not standardised these items fully among themselves, though this course is urged by several railway managements.

Wagons able to take heavy loads, however, have been known for some time. The Rhaetian Railway as far back as 1911, before it was electrified, introduced a 25-tonne platform-type vehicle; more recently a 35-tonne design has been constructed. Loading gauge restrictions are felt when consignments cannot be divided among two

or more vehicles. This is no new difficulty, but has become prominent of late because of the increase in out-of-gauge loads, chiefly heavy electrical generating plant. This problem concerns also the standard-gauge lines and steps must be taken to meet it, otherwise such loads are likely to desert rail for road and be lost altogether. It is true, however, that at times it is not possible to send such traffic by road.

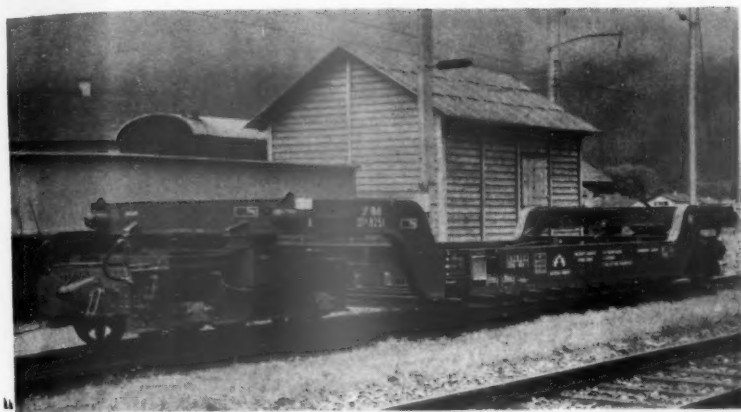
By removing certain obstacles and observing special precautions the Rhaetian Railway already has handled several such consignments, such as large excavators, cableway cars, fuel oil tanks, ferro-concrete items, and long rails. Such loads are exceptional, but conveyance of ordinary consignments demands equal care.

Special Vehicles

The transporter frame wagon, with rails on which a standard gauge vehicle can be taken, is now much used on narrow-gauge lines, but is not well suited to steeply graded rack-rail or



Transshipment of timber at Landquart by special sling holder



Drop-girder wagon on metre-gauge bogies

other sections of line. A basically similar vehicle can be used to take narrow-gauge stock over standard-gauge lines; but this usually is done only when bringing such vehicles from the builders.

Recent designs will carry up to 40 tonnes, fitted with 39 ft. of standard-gauge track. By coupling two or more together, capacity for special loads can be obtained. Loading and unloading can be done quickly if well-designed facilities are provided. The standard-gauge wagon can be worked through to, say, a factory; whereas to provide mixed-gauge track would be far too costly. There is the disadvantage of having to haul extra tare weight, about 12 tonnes, over the narrow gauge. This is felt on heavily-graded sections, but generally the arrangement gives satisfaction in Switzerland, because it obviates direct handling, with its risks and loss of time.

Aids to Transhipment

If goods must be transhipped at a junction, the problem is to apply maximum efficient mechanisation at minimum cost. The Rhaetian Railway began to use mechanised equipment in 1896, for handling timber. Special sling holders, as shown in the illustration on page 542, can deal with heavy loads. The device was later adopted for other items.

Containers

The container affords a single object to handle; but designs used for the standard gauge cannot at present be loaded in the normal way on narrow-gauge vehicles and must be placed specially thereon. Some change in dimensions might be made to advantage and would facilitate the further conveyance of the containers on road vehicles from and to railheads. There are still standardisation problems in Switzerland.

On the Senftal Railway, special containers for conveying waste products from quarries to a ballast depot have proved successful.

The movement over the Swiss Federal and Rhaetian Railways of

large quantities of cement has recently grown into a considerable traffic. It was the subject of an illustrated article in *The Railway Gazette* of September 28, 1956.

Oils of various kinds can be conveyed in special tank wagons. The Bernine Railway began to use them in 1909. The Rhaetian Railway at present disposes of about 132,000 gal. capacity in such vehicles. Great opportunities present themselves in these and other directions for minimising the disadvantages of break of gauge. Well-designed yard and siding layouts and efficient operating methods are essential to obtaining maximum benefits from any such vehicles.

Removable Bogies

Break of gauge is sometimes countered, as in the case of certain traffic between the standard and Russian (5-ft.) or Spanish (5-ft. 6-in.) gauges, by providing vehicles with removable bogies or wheelsets. Attempts made years ago in Switzerland to apply this plan led to no practical result but recently the Swiss Federal and the

Rhaetian Railways, in association with the transport firm of Welte-Furrer A.G. have had built a special drop girder-type 40-tonne vehicle with removable bogies for standard and metre gauges and also for travel by road, intended for extra large consignments. Change of bogies can be effected in 15 min. under load.

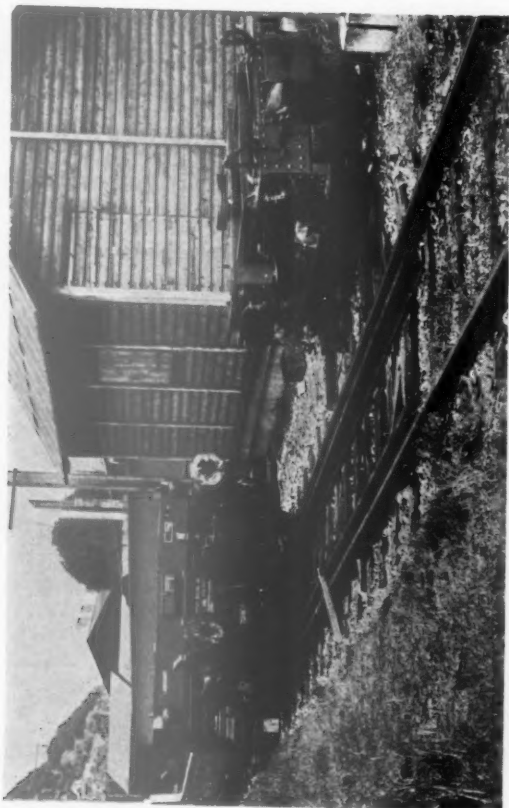
Another vehicle, for a 115-tonne load, is being planned by Pfingstweid A.G. of Zürich for heavy electrical equipment; a difficulty in introducing such stock, however, is the strength of the bridges on certain narrow-gauge lines. In general, all these problems are of equally vital concern to the standard-gauge lines, which usually have the longest part of the haul of any consignment, as failure to solve them can result in loss of traffic to both gauges. The position in Switzerland is, in effect, that the standard-gauge undertakings have some 800 miles of narrow-gauge siding connections.

SUCCESSFUL YEAR FOR LONDON-PERTH "CAR-SLEEPER LIMITED."—During the 1958 season nearly 5,000 motorcars were carried between London and Perth by British Railways, Eastern Region, "Car-Sleeper Limited." This represents a 10 per cent increase over the previous year. At the height of the summer, the demand for car-sleeper reservations was so heavy that relief trains were run from Kings Cross and Marylebone to cope with the extra traffic. Applications for 1959 bookings are already being received at the Kings Cross car sleeper office and at the British Railways stand at the Motor Show. Although the "Car Sleeper Limited" only operates from March to October, motorists can avail themselves of the Winter motoring service. Whereas the "Car-Sleeper Limited" caters for train loads of cars and passengers, the Winter service operates on a reduced scale. Cars are conveyed in vans attached to certain ordinary Anglo-Scottish overnight expresses. The Winter motoring facility operates between Kings Cross, Edinburgh, Perth, Aberdeen, and Inverness.



Detail of bearing for the drop-girder portion on standard-gauge bogie

Overcoming Breaks of Gauge



Transshipment from Swiss Federal to Rhaetian Railway at Landquart: drop-girder wagon on standard-gauge bogie



Drop-girder frame raised by hand-operated jacks, and standard-gauge bogie being removed from beneath it



Rolling metre-gauge bogie into position on transshipment track



Metre-gauge bogie about to be placed under drop-girder frame

RAILWAY NEWS SECTION

PERSONAL

Mr. M. J. Chughtai, General Manager, North Western Railway of Pakistan, is retiring. He is succeeded by Mr. S. B. Azid, General Manager, Chittagong Port Railway & Chairman of the Port Commissioners.

Mr. M. A. Rao, C.E. (Hons.), M.I.E. (India), A.M.A.S., C.E., who, as recorded

Mr. Rao represented the Railway Board at the Fourth International Congress on Large Dams.

Mr. F. E. Campion, Chief Civil Engineer, Southern Region, British Railways is retiring on November 30. He will be succeeded, on December 1, by Mr. F. E. Cantrell, Assistant Civil Engineer. Mr. J. Parker, District Engineer, Brighton, will be appointed Assistant Civil Engineer.

ford. Mr. W. G. Edmonds, at present Traffic Manager for the company, will relinquish that appointment to take up the position of Manager.

Mr. M. M. Khan, who, as recorded in our June 13 issue, has been appointed Acting Senior Deputy General Manager, Western Railway, India, was born in 1908. Mr. Khan was one of the first Indian officers recruited to the Mechanical



Mr. M. A. Rao

Appointed Senior Deputy General Manager,
Eastern Railway, India



Mr. M. M. Khan

Appointed Acting Senior Deputy General Manager,
Western Railway, India

in our August 22 issue, has been appointed Senior Deputy Manager, Eastern Railway of India, was born in 1909, at Jodhpur in Rajasthan. Mr. Rao graduated with honours in Civil Engineering from Roorkee University. He joined the Jodhpur Railway as an Assistant Engineer in 1931 and became Executive Engineer in 1942. In that capacity he was responsible for the survey and construction of 86 miles of railways. He was also responsible for the survey, design, construction, and running of the metre-gauge wagon assembly plant at Hyderabad. Mr. Rao was promoted to be Chief Engineer in 1948, and in the same year he was appointed General Manager of that system. In April 1952, when Jodhpur Railway became part of the then newly-formed Northern Railway, he was appointed Divisional Superintendent, Jodhpur. During 1953-54 he served as Administrative Officer, Kumbh Mela. In 1958, he became Senior Deputy General Manager of the Central Railway. In 1951

Mr. Cecil G. Thearle, District Passenger Agent, London, Canadian National Railways, has been appointed General Passenger Agent in Europe. He will succeed Mr. Arthur A. Massey who is retiring after 35 years service.

The Diesel Engineers & Users' Association has appointed the following officers and committee members for the year 1958-59:—

President: Mr. D. S. Dodsley Williams.
Hon. Secretary: Mr. Julian S. Tritton.
Hon. Treasurer: Mr. F. A. Greene.
General Committee: Mr. F. D. M. Gamble and Mr. R. A. Smeddle.
Hon. Auditors: Mr. E. R. Constance and Mr. C. B. Spivey.

The Manchester Ship Canal Company regrets to announce that on medical advice its Manager & Secretary, Mr. C. E. Lucette, has decided to retire at the end of the year. He will be succeeded as Secretary by his Deputy, Mr. D. K. Red-

Department of the Indian State Railways under the 1926 scheme. He began his railway service in 1927 and, after initial training in India, he received further training on the Southern Railway in England, from 1931 to 1933. He was appointed an assistant officer in the Mechanical Engineering and Transportation Departments, East Indian Railway, in 1933. He held an acting senior scale appointment in 1937, and subsequently became District Mechanical Engineer, Asansol Division; Works Manager, Locomotive Shops, Charbagh (Lucknow), and District Mechanical Engineer, Headquarters. In 1948 Mr. Khan became Deputy Chief Mechanical Engineer on the former East Indian Railway. In 1953 he was transferred to Lilloah as Deputy Chief Mechanical Engineer in charge of the Carriage & Wagon Workshop. In 1955 he was transferred to the North Eastern Railway and, in July the same year, he was promoted to be Chief Mechanical Engineer.

Co. Councillor Colonel T. Gregory has been appointed a Member of the Transport Users' Consultative Committee for the South Eastern Area until June 30, 1960. Colonel Gregory will serve as a representative of local authorities. He succeeds Co. Alderman W. K. Martin, who has resigned owing to ill-health.

Dipl.-Ing. Alfons Brill, who, as recorded in our October 24 issue, has retired as Chief of the Engineering Department, German Federal Railway, was born at Karlsruhe in 1893. Mr. Brill received his

Mr. S. C. Pearson, Assistant General Manager (Services), Consett Iron Co. Ltd., has been appointed Assistant General Manager. Mr. Pearson was formerly Assistant District Goods Superintendent, Newcastle-on-Tyne, North Eastern Region, British Railways.

Vice-Admiral Sir Frank Mason has been appointed a member of the Council for Scientific & Industrial Research. He is a Director of Metal Industries Limited, and H. W. Kearns & Co. Ltd. and Consultant to Metropolitan-Vickers Electrical Co. Ltd.

Co. (S.A.) (Pty.) and A. Reyrolle & Co. (Rhodesia) Ltd. In consequence of retirement from executive duties, C. A. Stephens has resigned from boards of the Parolle Electrical Plant Ltd., the British Short-Circuit Station, A. Reyrolle & Co. (S.A.) and A. Reyrolle & Co. (Rhodesia).

Dr.-Ing. Günther Wiens, who, as recorded in our October 24 issue, has been appointed Chief of the Engineering Department, German Federal Railway, was born at Kiel in 1901. From 1927 to 1929,



Dipl.-Ing. Alfons Brill
Chief of the Engineering Department,
German Federal Railway, 1951-58



Dr.-Ing. Günther Wiens
Appointed Chief of the Engineering Department,
German Federal Railway

technical training at the Technical High School in that city. Shortly after the 1914-18 war, he became head of the Technical Section of the German State Railway Repair Works in Trier and Nied. From 1927 to 1929, was on loan to A.E.G. in Berlin. On return to the railways, he was appointed District Locomotive Superintendent at various places. For political reasons Mr. Brill left the Reichsbahn service in 1934, and, until 1945, served in private industry. During the 1939-45 war, was in charge, under the German Government, of the Cegielski locomotive works in Poland. In 1946 he was made Head of the Workshops Department of the railways in the American zone. Early in 1947, he was appointed *Ministerialdirektor*, in charge of Mechanical Engineering, Bielefeld headquarters, British zone. On the formation of the German Federal Railway, at the end of 1951, he assumed the same responsibility for the whole of the system, with headquarters first at Offenbach, and later at Frankfurt.

Mr. J. H. Prole has been appointed Assistant Manager, Mechanical Handling Division, Babcock & Wilcox Limited.

Mr. G. E. Walker, has joined the board of Associated Electrical Industries Limited. He will fill the newly-created position of Director of Central Services and will continue to be the company's Secretary.

Mr. H. H. Mullens, Managing Director of A. Reyrolle & Co. Ltd., has been appointed Chairman. He succeeds Sir Claude D. Gibb, who retains his seat on the board. Sir Claude Gibb has relinquished the chairmanship because of his commitments with the companies associated with C. A. Parsons & Co. Ltd. and A. Reyrolle & Co. Ltd., which have increased in recent years. Mr. E. N. Robinson continues as Deputy Chairman. Mr. J. Bennett has joined the board of the Parolle Electrical Plant Co. Ltd. and Mr. W. G. Martin the boards of A. Reyrolle &

Mr. Wiens served at various workshops of the German State Railway. He was appointed Carriage Design Assistant, *Zentralamt* (Central Design & Stores Office), Berlin. In 1932 he was transferred to the Ministry of Transport on carriage and wagon work. In 1938 rejoined the State Railway as Head of the *Parolle* Carriage Design Section, *Zentralamt*. He again joined the Ministry in 1940, to take charge of all carriage and wagon technical matters. Three years later was appointed President of the Warsaw & Breslau Division of the State Railway. After the 1939-45 war, he re-joined the Mechanical Engineering Department of the railways. In 1953 he went once again to the Ministry of Transport, this time at Bonn, as Adviser on all railway technical questions, and in particular new developments. In 1957 he was appointed to the German Federal Railway headquarters at Frankfurt, as *Ministerialrat*, in charge of the Carriage & Wagon Department, the position he now vacates.



Mr. C. R. Atkins

Stores Superintendent, Scottish Region, who has retired

Mr. C. R. Atkins, Stores Superintendent, Scottish Region, British Railways, who, as recorded in our September 12 issue, has retired, began his railway career in the Mechanical Engineer's Department, Crewe, London & North Western Railway in 1913, and later transferred to the Stores Department. In 1914, Mr. Atkins joined the Cheshire Regiment and served in France and Flanders from 1915 to 1917, when he was commissioned in the Indian Army Reserve of Officers, and posted to Deoli Regiment. After demobilisation in December, 1919, Mr. Atkins returned to the Stores Department, Crewe. On the formation of the Stores Section of the Stores Superintendent's Office, Euston, in 1923, Mr. Atkins was transferred there. He later became a member of the Stores Inspection Staff, and was closely associated with the preparation of the L.M.S. Standard Catalogue of all items stocked by the Stores Department. He joined the Transportation Branch, Royal Engineers, in February, 1940 and was posted as Staff Captain, War Office, Transportation Technical Supply, subsequently being promoted D.A.D.Tn. (Stores) and afterwards taking command of No. 1 Tn. Stores Group, E. He was posted to Normandy immediately after "D" day in command of Advance Tn. Stores Troops, where he was responsible for the opening of Tn. Stores Depots in France, Belgium, Holland and ultimately in Germany. Awarded the O.C.E. (Military) for services in North West Europe and for work in connection with the rehabilitation of German Railways. Mr. Atkins was demobilised in July, 1945, and took up the appointment of Deputy Divisional Storekeeper, Northern Division, L.M.S. Railway, Glasgow. In 1948 he became Assistant Stores Superintendent, Scottish Region, British Railways and in 1949 Stores Officer, Scottish Region (redesignated Stores Superintendent in 1954), the position he has now vacated.

Mr. J. Hodgkinson has been appointed a Director of Wickman Limited, with overall responsibility for the company's machine tools export interests. He will retain his present appointment as Managing Director of Machine Tools (India) Private Limited, an associated company.

Mr. J. S. Lees, Sales Manager (Passenger Vehicles), Leyland Motors Limited, has been appointed Home Sales Manager for Leyland and Albion goods and passenger vehicles.

Mr. E. A. Langham, Resident Representative in Australia, the British Aluminium Co. Ltd., is returning to the United Kingdom early in 1959. He will be succeeded by Mr. G. A. Daniels.

Mr. G. Norman Rodgers, Assistant Secretary, Newton Chambers & Co. Ltd., has been appointed Deputy Secretary of Ransomes & Rapier Limited, which was merged with Newton Chambers last April. Mr. Rodgers will succeed Mr. H. C. Horsup as Secretary when he retires next summer, after 40 years' service.

THE INSTITUTION OF LOCOMOTIVE ENGINEERS

The following names have been added to the register of members of the Institution of Locomotive Engineers:—

Members

Mr. V. J. Matterface, Electrical Traction Engineer, Gateshead East, North-Eastern Region, British Railways.

Associate Members

Mr. C. R. Allman, Production Engineer, Locomotive Works, Crewe, London Midland Region, British Railways.

Mr. A. Bates, Railway Engineer, K.G.S. Bearing Co. Ltd.

Mr. B. H. Harrison, Personal Assistant to General Manager, Traction, English Electric Co. Ltd.

Mr. J. M. Nixon, Electrical Design Engineer, Metropolitan-Vickers Electric Co. Ltd.

Mr. W. J. A. Phelan, Technical Assistant, C. & W. Engineer's Dept. Cowlares Works, British Railways.

Mr. C. White, Resident Engineer, English Electric Co. Ltd., on the Malayan Railway.

Associate

Mr. R. C. Crouch, Superintendent, Railway Lubricants, Regent Oil Co. Ltd.

Graduates

Mr. T. N. Barrow, Cadet Mechanical Engineer, East African Railways & Harbours.

Mr. J. Kimber, Materials Inspector, Plant Works, Doncaster, British Railways.

Mr. B. C. Kind, Design Draughtsman, Gloucester Railway Carriage & Wagon Co. Ltd.

Mr. A. T. Park, Junior Traction Control Engineer, General Electric Co. Ltd.

Mr. G. Perkins, Draughtsman, D. Wickham & Co. Ltd.

Mr. A. Philpott, Technical Assistant, Research & Development, Swindon, Western Region, British Railways.

Mr. A. D. Swanston, Commercial Engineer (Traction), British Thomson-Houston Co. Ltd.

Student

Mr. D. F. Fawcett, Engineering Apprentice, Locomotive Works, Derby, British Railways.

Associate Member to Member

Mr. W. E. Grainger, Assistant Divisional Traffic Manager, Barrow-in-Furness, London Midland Region, British Railways.

Mr. G. Mansfield, Technical Manager, Dearborn Chemical International Corporation, Buenos Aires.

Graduate to Associate Member

Mr. P. Scribbs, Mechanic, Gas Tractor Plant, Goliad Oil & Gas Co., Canada.

Mr. A. U. Zafar, District Controller of Stores, Moghalpura, North Western Railway of Pakistan.



Mr. H. B. Taylor

Assistant Operating Superintendent, Southern Region, 1948-58

Mr. H. B. Taylor, Assistant Operating Superintendent, Southern Region, British Railways, whose retirement was recorded in our October 17 issue, joined the London & North Western Railway in 1912. During the 1914-18 war he served in France with the Royal Engineers (No. 6 Light Railway Operating Company), and was awarded the Meritorious Service Medal. He rejoined the L.N.W.R. in 1920, and after holding various appointments, became Divisional Head Office Inspector at Crewe, in 1930. In 1932 he served in the Chief Operating Manager's Department. In 1935 he was appointed Senior Clerk (Freight Services Section), Chief Operating Manager's Department, Euston, and, in 1936, Assistant (Freight Services Section). In 1943 Mr. Taylor was appointed Divisional Controller (Freight Services) Manchester. He became Assistant (Station Working) to the District Goods Manager, Broad Street in May, 1944, and in October, 1944, was seconded to the Railway Executive Committee as Operating Assistant to the Chairman of the Operating Committee. During this time he was the Railway Member of the Shipping Diversion Room, Ministry of Transport. Mr. Taylor was appointed District Operating Manager (London Midland in 1946, and Assistant Operating Superintendent, Southern Region, British Railways, in 1948. He served on many committees and special investigations. He was one of the original team who, before the 1939-45 war, set up the Inter-Company Freight Rolling Stock Control Organisation. This organisation is now known as the Inter-Regional Freight Rolling Stock Control.

Mr. Frank Perkins, Chairman & Joint Managing Director, F. Perkins Limited, is making a business tour of Turkey, Greece, Italy, Malta and Middle East countries.

Mr. C. F. Huebner, Buying Controller, British Oxygen Co. Ltd., has been elected President of the Purchasing Officers Association for 1958-59. Mr. W. H. Parry, Chief Purchasing agent of the Simplex Electric Company, has been elected the National Chairman.

NEW EQUIPMENT AND PROCESSES

Laminated Lightweight Doors

CAST aluminium has been widely accepted as a practical lightweight alternative to railway carriage doors constructed of wood with heavy metal fittings.

A compromise between the demands of cost, weight, and dependability has been reached in the form of a door marketed under the registered name Lamanised. This by no means fully replaces cast aluminium but it offers a very considerable improvement over existing types of wooden and composite doors. A sandwich construction is used either of aluminium, steel, plastic, or fibre board, or of combinations of these materials assembled in a fixture to form a pocket into which is poured Rigid Foam substance.

The illustrations show a Lamanised door for Rhodesia Railways stock in the assembly fixture and after completion.

This relatively new method of construction, developed by Lightalloys Limited which successfully pioneered the introduction of cast aluminium doors over 30 years ago and which supplied the original doors of this kind for railways in Australia, is claimed to afford exceptional strength for weight, and to be completely rigid, insulated against heat and sound, vermin proof, and impervious to water.

The filling is an artificial resin, polyurethane isocyanate, an I.C.I. product which undergoes a change after pouring and thus becomes a rigid foam material; it completely fills the cavity and becomes firmly bonded to the panels.

The makers state that a door using foam sandwiched between 20-G. aluminium, will withstand the same static load without permanent damage as a timber door of equivalent thickness. Slamming and vibration tests show that the timber door fails after a comparatively short time, when the joints break and screws fall out. The polyurethane Lamanised door, it is stated, has none of these defects and its life is over 200 times that of a wooden or composite door.

As a test for fire resistance, a Lamanised

section was used as the door of a muffle furnace, and the interior was raised for 50 min. to 880° C. The outside plate of the Lamanised door reached 190° C., and the door was not destroyed. It is also possible to weld on brackets or seam weld the plates on top of the foam without detriment.

Laboratory tests for thermal insulation show that the "U" value of a Lamanised structure compares favourably with glass wool and cork, and toxic gases are not released in the event of fire. Another advantage claimed is that, as the foam within the sandwich is non-hygroscopic, corrosion caused by moisture is prevented from taking place on the material to which the foam is bonded. This adds much to the life of the structure.

A very strong structure may be obtained by using the compressive strength and bonding capabilities of the foam in the Lamanised construction, so reducing or entirely obviating use of screws, rivets or welding.

Literature and specifications can be obtained from the manufacturers, Lightalloys Limited, 51, St. Leonards Road, London, N.W.10.

When Lamanised doors are used in conjunction with G. D. Peters & Co. Ltd. operating gear they are known as the Peterloy range.

Welding Electrode

A HIGH-GRADE contact electrode for downhand welding of steel, the Speedivick 2, can be used for a wide variety of work in mechanical and civil engineering departments, including locomotive, carriage, and wagon construction and repair and building point-and-crossing work. Applications include fillet welding, outside corner joints and butt joints. The high non-powder content of the electrode is stated to afford two advantages. As the coating is electrically conductive, striking and re-striking of the arc are greatly faci-

litated; and the iron-powder is deposited along with the core wire, giving longer runs of welding per electrode. The metal recovery is stated to be approximately 135 per cent of the core weight, compared with about 90 per cent for a standard rutile type electrode. The maximum welding currents are over 20 per cent greater than for average electrodes. This, with the characteristics mentioned above, and easy de-slugging, makes the Speedivick 2 economical. It can be used with a.c. or d.c., either polarity. With a.c. it is stated to operate with open circuit voltage as low as 45.

The electrodes are available from stock in six sizes, $\frac{1}{8}$ in. dia. and 4-12 gauge, and have been approved by Lloyds and the Ministry of Transport & Civil Aviation for the welding of mild steel in the downhand position, also by the Ministry of Supply for welding carbon manganese steels (carbon 0.26 max.) Class FV1050/IV. BS. 1719 Classification number for the electrode is E947. Prices per cwt. range from £6 10s. for 4-gauge to £6 17s. 6d. 10-gauge.

The manufacturer is Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester, 17.

Tube-Cleaning Tools

A RANGE of spring-operated and self expanding tools, the Flexpanda, can be used in conjunction with all types of rotary tube cleaning equipment for straight and curved tubes.

The sizes that are available cover tube bores ranging from 0.792 in. to 2 $\frac{1}{2}$ in. A special small scraper tool can be supplied for $\frac{1}{8}$ in. bore condenser tubes. Larger sizes will be available later.

Because of the independent springing of the brushes and scraper blades, the tools conform to distortion in tube bores, and they remove thin scale, soot, or sludge without scoring the tube walls, or setting up vibration.

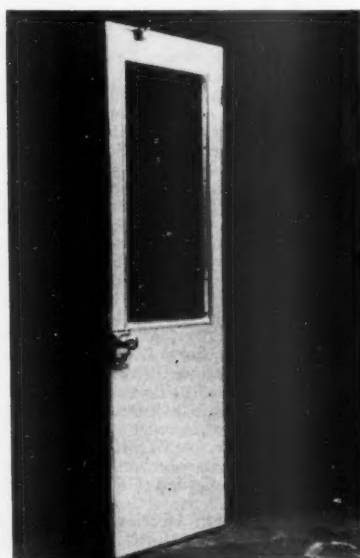
Smooth operation and a high degree of finish are provided by the brushes, which contain independently sprung inserts, and are available in wire, bristle, or nylon.

The scraper tools are an alternative to the brush being fitted with blades instead of brush inserts for heavier conditions of service. The blades can be either negative rake, or square face pattern, or a mixture of both. There is also a combination tool, which embodies a mixture of blades and brush inserts together.

Further information regarding the range of tools with price and delivery information may be obtained from the manufacturer, Flexotube (Liverpool) Limited, 25 Hope Street, Liverpool 1.

Silicone-Grease-Filled Polythene Sleeves

SIGNAL engineers will find several uses for the Polytel Silicone-grease-filled polythene sleeve, designed for sealing, against moisture, individual conductor joints in plastic-insulated communication cables. It avoids the necessity of covering each twisted conductor joint with an insulated tube and placing a sealing sleeve



over the complete joint. It is claimed that with this sleeve a water barrier need only be fitted to the cable in one end of each joint, so preventing formation of a continuous-pipe effect being formed by the whole system allowing damage by moisture. It is essential to protect the sleeve from sunlight, to avoid damage to the natural and lightly-pigmented polythene from which it is made. Where necessary, such protection may be obtained by two layers of Rotunda black adhesive P.V.C. tape with 50 per cent overlap without tension.

The tubular polythene sleeve is sealed at one end and filled with a non-melting, non-solidifying, silicone grease of good dielectric properties, a high degree of water repellence, oxidation resistance and a working temperature range suitable for home and overseas services. Installation is simple. The twisted and soldered joint is bent back along the core and is then enclosed inside the sleeve.

The manufacturer's tests reveal that conductor joints protected by Polythel sleeves registered insulation resistances of 10^6 megohms and 5×10^4 megohms respectively after prolonged immersion in water of fluctuating temperatures, and prolonged atmospheric exposure and subsequent total immersion in water.

Delivery is ex-stock. Further particulars may be obtained from the manufacturer, British Insulated Callender's Cables Limited, Prescott, Lancs.

Welded Fastenings for Rolling Stock as Deck Cargo

CARRIAGES and wagons carried as deck cargo on board ship can be secured by welding angle iron supports between the underframe and the deck. This method was used in conveyance of insulated wagon bodies for the New Zealand Government Railways from Australia. Further details may be obtained from the N.Z.G.R.

The bodies and underframes were carried athwartships. The weight was taken on bunks of timber attached to the hatches near the coamings. The overhang at each end was then supported and secured to the deck by angle irons dropped vertically from the headstocks and under-

frames to the deck plates of the ship. All angle irons were attached by welding.

Additional angle-iron supports were also placed between the underframe of the wagons and the steel framing of the hatches as shown in the accompanying illustration, below right.

Measuring Density of Diesel Smoke

THE testing of diesel fumes with a view to minimising nuisance in tunnels, under station roofs, in workshops, and in other confined spaces is aided by an instrument approved by the Air Pollution



Panel of the Motor Industry Research Association.

The Smokemeter is a portable electrical instrument 2 ft. long, 12 in. wide, 11 in. high. Operating current may be supplied from the mains through a rectifier or from batteries. The illustration shows a trolley-mounted combined meter and power supply unit.

The meter consists of a light source and a photo-electric cell mounted at each end of a swinging arm. There are two tubes. One contains clean air supplied under slight pressure by an electric blower, and the other a continuous sample of the exhaust gas taken from the vehicle exhaust pipe.

The light source and the photo-cell can be moved together so that the path of the light to the cell passes through the tube containing the exhaust sample or through the tube containing the clean air.

The output from the photo-cell is connected to a micro-ammeter which is calibrated to indicate percentage smoke density. The air tube is identical with the smoke tube and acts as a datum for comparison with the density of the smoke.

A high smoke density indicates that adjustment or overhaul of the engine or fuel injection equipment is required.

Further details, including price and delivery, may be obtained from the manufacturer, Leslie Hartridge Limited, Buckingham, Bucks.

Valve Refacing Machine

THE Hunger refacing machine trues valves up to 8 in. dia., as on diesel locomotive engines, by turning instead of grinding. Smaller equipment is also available for valve heads up to 2½ in. dia. Valves can be turned on the equipment with Widia cutting tools.

The angles of the cuts are pre-set and cannot alter although they can be varied on the refacing machine in 15 min. graduations to provide adjustment up to 1 deg.

The equipment is capable of dealing with very hard valves and valve seats and is especially intended to cope with the masked valves encountered in diesel engines.

The valve seat cutting equipment also provides for correction of the valve seats when they have been cut too deeply by grinding operations. It is capable of relieving the top and bottom of the seat so that the valve face is in correct contact with the valve seat.

Details of prices of the complete range, with delivery, are available from the manufacturer, E. F. Allchin & Co. Ltd., 253 Bordesley Green, Birmingham, 9.



Ministry of Transport Accident Report

Preston, January 16, 1958: British Railways, London Midland Region

Brigadier C. A. Langley, Chief Inspecting Officer of Railways, Ministry of Transport & Civil Aviation, inquired into the accident which occurred at 1.51 p.m. on January 16, 1958, at Preston station when the 1 p.m. passenger train, Blackpool Central to Wigan, consisting of four bogie coaches drawn by a class 5 mixed traffic 4-6-0 engine, was passing at about 10 m.p.h. through the crossover from the up slow line to No. 3 platform and came into contact with the tender of a class 8 2-8-0 freight engine which had been used to make brake tests and was standing at the rear of a parcels train in No. 2 platform, consisting of 16 vehicles drawn by an engine of the same type as that hauling the passenger train. The passenger engine became derailed and the four coaches attached to it buffer locked. The tender of the light engine was swung round and the engine itself overturned. The parcels train was driven forward a

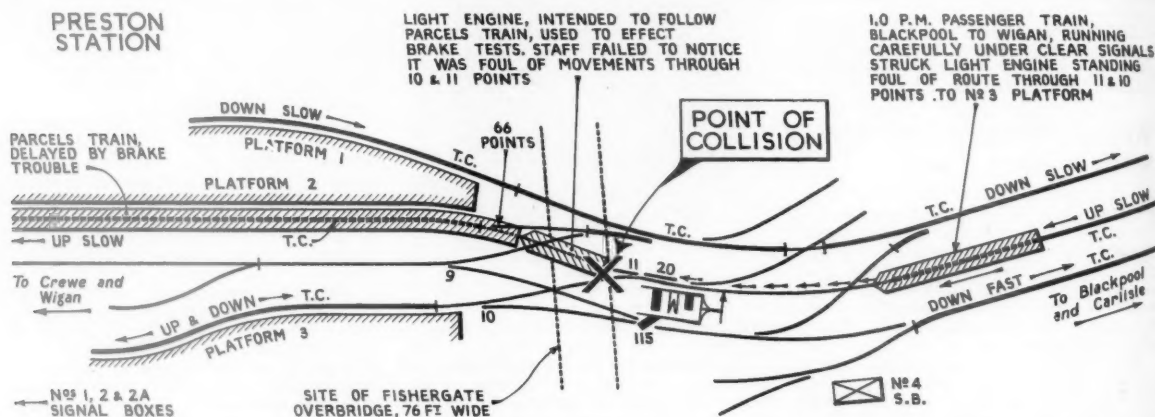
The 164-lever No. 4 box is worked during the busy shifts by three men. The ends of Nos. 2 and 3 platforms cannot be seen from the frame and the signalmen have to walk to the west window to observe them. Visibility is sometimes obscured by smoke and steam hanging under Fishergate bridge. Nos. 1, 2 and 2A boxes are at the south end of the station and No. 5 is 390 yd. north of No. 4.

Course of Events

The parcels train arrived in No. 2 platform at 12.52 and stopped with its rear bogie on 66 points. Some vehicles were then coupled in front but during the brake test difficulty was experienced in creating vacuum and departure was postponed. Signals cleared for that at No. 2A box then were replaced to danger. The station inspector asked the yard foreman for another engine, to test from the rear.

box, when he learned it was for another destination. He therefore decided to let it follow the parcels train. This was normal procedure but had he known the facts earlier he could have sent it through an unoccupied line. He thought there was sufficient room for it to stand clear of the connection to No. 3 platform and had it accepted under permissive regulations. He knew nothing of the delay to the train, thinking it would leave at any moment. He did not look to see where the engine stopped.

The Blackpool train was then accepted, as he believed the line to be clear to the south end of the overbridge. When—after co-operation with the man at the middle of the frame working the No. 3 line (absolute) block instruments—he cleared the relevant signal he saw the track circuit in No. 2 line was occupied but thought the parcels train had left and the engine was in the platform. He



few yards and its last six vehicles damaged, one being partially telescoped. Nine passengers and four railway staff were injured or suffered from shock; 12 were taken to hospital but only one was detained and for one day. Working was not seriously affected as there are several alternative routes through the station; cranes arrived speedily and normal working throughout the station could be resumed after 21 hours. It was misty, with steam and smoke hanging about in the heavy atmosphere.

The accompanying diagram shows the lines, signals, etc., essential to an understanding of the case.

Signalling

In 1938 a scheme was approved for complete power signalling and track circuiting with amalgamation of signal-boxes but work was stopped by the war. The No. 4 signalbox (see diagram) had to have its lever frame renewed in 1948 and some more track circuiting also was installed in 1952 and 1953. A complete relay interlocking scheme has been included in the modernisation plan but priority relating to signalling for electrification makes it improbable that the work can be undertaken until after 1970.

The signalman in No. 4 box handling such movements, unaware of this delay, allowed the light engine to enter No. 2 platform under permissive regulations so that it could later follow the parcels train. The foreman decided to use it for the tests and coupled it to the train but failed to notice it was foul of the crossover to No. 3 platform; nor did the engine crew realise this. The brake trouble was overcome and the parcels train about to leave when the colliding train arrived.

Its driver said he ran in slowly as No. 4 box distant signal was at caution; the home signal was off and his fireman told him that the signal to No. 3 platform was also. He saw it himself a moment later but not the light engine, view of which was obscured by the boiler. He took speed on collision to be about 5 m.p.h. The fireman confirmed this and said he did not see the engine; it was misty with smoke under the bridge. He thought, however, their speed was about 10 m.p.h.

The signalman responsible for in movements on the up side said that after the parcels train arrived the light engine was signalled as only shunting into section to clear the connections leading to a shed, but its driver brought it forward to the

admitted he misjudged the distance available behind the train and assumed it had left and that the route was now clear into No. 3 platform; he did not look out again, however, to check that. He would have had some difficulty in seeing the engine under the bridge owing to the mist, steam and smoke but did not put this forward as an excuse.

This evidence was confirmed by the other signalman mentioned who said he did not look to see whether the line was clear as his colleague was responsible for working the signal for entering the platform. Conditions under the bridge often made it difficult to see if the lines at the south end of the bridge were clear.

Chief Inspecting Officer's Conclusion

The signalman failed to ensure that the line was clear; the driver had his train under proper control and no responsibility rests with him. In view of the bad visibility neither he nor his fireman could have been expected to see that the engine was obstructing the route.

Brigadier Langley is sure the foreman would have warned the signalman that the engine was standing foul, had he noticed it; he did not, however, give the matter a thought or advise the signalman

of the delay to the parcels train. The inspector, who had told the signalman in No. 2 box of the brake trouble would have, it is believed, warned No. 4 box but thought the foreman would do that when the other engine, standing then in No. 3 platform, was asked for, but the foreman had no need to do so when the light engine arrived. The No. 4 box signalman was thus left in ignorance of the delay. This may have contributed to his failure to see that the line was clear. Although the parcels train had no rigid timing it would be good operating practice if station staff advised signalmen of any likely undue delay; no doubt this will be done in future.

Track circuiting on the slow lines under the bridge would have prevented the accident; its absence adds to the difficulties in No. 4 box which controls much of the heavy traffic through this busy station. Although the lines are close to the box and visible from the west window they can be obscured by smoke and steam from engines standing under the bridge; it is then extremely hard to judge whether they are clear.

The need for modernisation here has long been recognised; it is unfortunate that the work has had to be postponed so long and now will be further delayed. Completion of the track circuiting on the up slow lines between the north end of Nos. 2 and 3 platforms and the existing track circuit is, however, a matter of urgency. It is satisfactory to report that this is in hand. It would be desirable to review the working conditions throughout the station to see where similar safeguards should be provided in advance of complete modernisation.

M.V. "Harrogate" Launched

The third of six new ships being built on the Clyde for Associated Humber Lines Limited was launched and named *Harrogate* by Lady Landale Train, wife of Sir J. Landale Train, who until quite recently was a member of the British Transport Commission, last Monday.

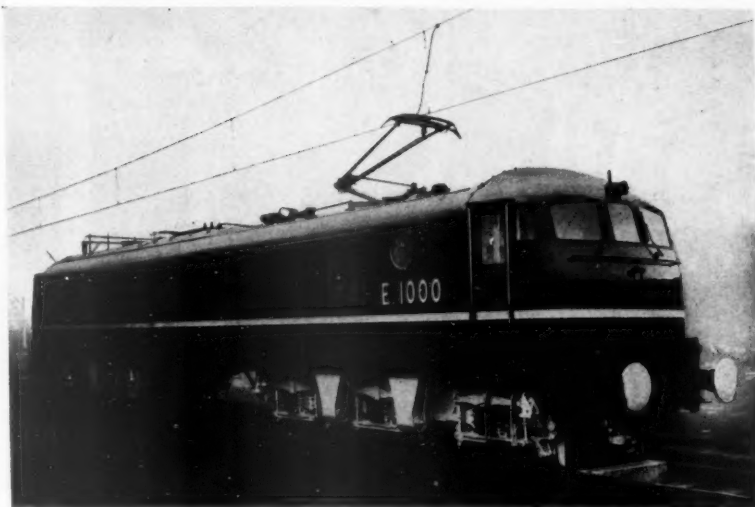
The vessel, which was built by James Lamont & Co. Ltd., is a sister ship to the m.v. *Darlington*, launched in July last, and is of approximately 1,100 ton total deadweight, giving 950 ton cargo deadweight. The design was prepared by the B.T.C. consultants, Burness, Corlett & Partners, in conjunction with Associated Humber Lines Limited, technical officers. She is a single screw cargo motorship fitted with Ruston & Hornsby Limited engines and will have a service speed of 12½ knots.

The vessel will trade in the Associated Humber Lines Limited Goole and Hull services to the near Continental ports. Special attention has been given to the conveyance of railway containers and the vessel will be able to carry up to 30 of the large type and correspondingly higher numbers of the smaller types.

Mr. H. A. Short, Chairman of Associated Humber Lines Limited, and General Manager, North Eastern Region, British Railways, stated after the launch that the new methods of carrying cargo, either in railway containers or on pallets, possessed great potentialities; they offered to traders quite substantial savings in packing and ensured safety in conveyance. These methods, he said, were finding much favour with shippers and were also finding favour with shipowners because of the reduction in handling cost.

L.M. Region A.C. Electric Locomotive

Converted gas turbine locomotive for training motormen



Former gas turbine locomotive converted for training London Midland Region staff in main line electric operation

The first a.c. electric locomotive has been delivered to Manchester, London Midland Region, British Railways, to train instructors and drivers for the future main-line electrification.

The locomotive, which is to be used only for training and to test overhead line equipment, was originally a gas turbine locomotive and has been converted by the builders, Metropolitan-Vickers Electrical Co. Ltd. It was originally employed as a gas turbine on the Western Region of British Railways for experimental purposes. The conversion has made it possible to carry out tests and training in advance of the electric locomotives now being built for passenger services.

The gas turbine and its associated auxiliaries have been removed and a transformer and mercury arc rectifiers, to supply power to four of the original traction motors, mounted in their place. The other two traction motors have been removed.

The locomotive had a Co-Co wheel arrangement and the original bogies have been retained, but only the two outer axles on each bogie are now motored.

The roof of the locomotive has been modified to accommodate the pantograph and the air blast circuit breaker and both cabs have been remodelled and re-equipped to conform as near as possible to the design of the new a.c. locomotives, although the future cabs will have more space.

Electrical Equipment

The Faiveley pantograph and Brown Boveri circuit breaker are of the same type as those to be fitted on the first of the new a.c. locomotives and multiple unit trains, but only one pantograph is fitted, whereas future locomotives will have two pantographs.

The main transformer has three windings. The primary winding is so arranged that it can be connected to a 25-kV. or 6.25-kV. supply according to the voltage of the overhead line. The secondary supplies three Hewitt glass bulb multi-anode rectifiers for the traction load. The

tertiary provides an 800-V. supply for electric train heating. These rectifiers are not typical of those to be used on future a.c. locomotives.

Tap changing on the transformer enables the rectifier to give a d.c. voltage to the traction motors, and, therefore, controls the working speed and load of the locomotive. The original chloride 110-V., 360-Ah. lead acid battery has been retained to supply certain of the auxiliaries.

The locomotive is fitted with air brakes which can be operated either by the air brake handle or when a fitted train is being worked by the vacuum brake handle through a vacuum-air proportional valve.

The locomotive's weight and leading dimensions are:—

Weight in running order	105 tons
Overall length over buffers	66 ft. 9½ in.
Bogie centres	38 ft. 0 in.
Bogie axle centres	7 ft. 6 in.
Overall height	12 ft. 10 in.

The bulk of the training of staff will be done on the Styal line, nine route miles between Wilmslow and Slade Lane Junction, first with light engine and then with loose-coupled and fitted trains between Mauldeth Road and Styal and later between East Didsbury and Sandbach.

To meet requirements for the operation of electric services on the Manchester-Crewe line, some 294 instructors, motormen, and guards will be trained on this locomotive.

DIESEL RAILBUS SERVICE ON SPEYSIDE BRANCH. — British Railways, Scottish Region, is to introduce a through service from Aviemore to Elgin via Advie on November 3. It will be worked by a Railbus built by Bristol Commercial Vehicles Limited in conjunction with Eastern Coachworks Limited. This vehicle recently ran on a demonstration test to Elgin, as recorded last week. It accommodates 56 passengers. The speed is 50-55 m.p.h. As the new facility opens up possibilities for developing passenger traffic by rail, the results will be studied with careful attention.



Photos]



[P. S. A. Berridge

Members of the Railway Assistant Engineers Association on the visit to Thornton Marshalling Yard, Scottish Region

R.A.E.A. Meeting in Edinburgh

Over 40 members of the Railway Assistant Engineers Association met in Edinburgh on October 17. Travelling in a twin diesel car set, they visited the Forth Bridge, to see paint trials at the base of the centre cantilever structure on Inchgarvie; the new marshalling yard at Thornton; a marshalling yard under construction north of Perth, and Leith Central Diesel Depot.

Mr. E. C. Cookson, Assistant Civil Engineer, Western Region, and Chairman of the Association, after luncheon at the Station Hotel, Perth, expressed thanks on behalf of members to Mr. H. C. Orchard, Assistant Civil Engineer, Scottish Region, for the excellence of the arrangements made, and asked that these sentiments be conveyed to M. G. Maycock, Chief Civil Engineer of the Region. At a meeting held in the evening at the Royal Hotel, Edinburgh, a discussion took place on various aspects of modernisation in the Scottish Region.

In the left-hand illustration, Mr. W. Gibson, Yardmaster, Thornton (third from left, front row) is seen with some of the party. The right-hand illustration shows (left to right): Messrs. M. A. Henry, Resident Engineer, Neath, Western Region;

H. Savage, Assistant Civil Engineer (New Works), Western Region; and L. E. Hawkins, Civil Engineer (General), London Transport Executive.

The next meeting of the R.A.E.A. will be held in London on January 30, 1959.

New Traverser at L.T.E. Acton Works

A new traverser for Underground cars at London Transport Acton Works replaces one installed in 1922 when the works first opened. The load capacity is 61½ tons.

Close control at all speeds and loads is provided by the use of a Ward-Leonard drive; the 600-V. d.c. electrical supply is taken from the traction system by overhead wires. The winch is driven by a separate motor, and a single controller is provided for application at will to either the travelling or the hauling motor by the use of a changeover switch. The winch is angled to provide adequate clearance from vehicles carried on the traverser, and to ensure that the line of pull of the hauling rope is normal to the axis of the rope drum.

Each driving wheel is mounted on a short axle with roller bearings and carries an independent gear ring driven by a pinion on a cross-shaft. This enables any wheel to be withdrawn independently for maintenance purposes, which is advantageous when compared with the conventional arrangement.

Clear Field of Vision for Operator

The electrical equipment is mounted at low level, with motors and generators in external housings with removable top and side covers. The cabin is consequently of unusually small size and allows a clear field of view in all directions.

The traverser was built by Stothert & Pitt Limited to the specification of London Transport. The electrical equipment was supplied by Laurence Scott & Electromotors Limited.

Use of Traversers in Flow System

There are three traverser pits at Acton and the traversers play an important part in maintaining the flow system used for the overhaul of rolling stock. No. 2 pit, in which the new traverser is installed, is the link between the lifting shop, experimental shop, and two groups of sidings used for bogie storage and allied purposes,



New traverser at Acton Works, showing winch in use. Low level machinery housings allow the operator an exceptionally clear field of vision

on the north, and the truck, reconstruction, paint, and carbody shops on the south side. There is a second, older, traverser in the same pit.

The installation has been carried out to the requirements of Mr. A. W. Manser, Chief Mechanical Engineer (Railways), London Transport.

Staff and Labour Matters

Industrial Disputes Tribunal

The Minister of Labour & National Service announced last week his decision to terminate Industrial Disputes Order No. 1,376 dated August 1, 1951. This had established the Industrial Disputes Tribunal in place of the former National Arbitration Tribunal. It is expected that the decision will take effect in six months' time and will mean the end of compulsory arbitration.

Compulsory arbitration was brought in during 1940 as a wartime measure under the Conditions of Employment & National Arbitration Order 1305 which illegalised strikes and lock-outs and bound all employers to observe terms and conditions of service not less favourable than those recognised.

In 1951, Order 1305 was superseded by Order 1376 under which the Industrial Disputes Tribunal was set up. It effected a change of attitude to strikes and lock-outs in that they were no longer regarded as illegal. This followed union representations after one or two prosecutions had been made against employees participating in unofficial strikes.

The Industrial Disputes Tribunal procedure is compulsory in that either party to a dispute can report such dispute to the Minister and he is bound to refer the matter to the Industrial Disputes Tribunal. If adequate machinery exists in the industry and it has not been exhausted he may refer it back to be dealt with under that machinery. The award of the Industrial Disputes Tribunal becomes an implied term of contract enforceable in the courts. The order also compels employers to observe recognised terms and conditions of employment.

When the Industrial Disputes Tribunal is abolished, industries which have not their own negotiating machinery will be left only with voluntary arbitration under the Industrial Courts Act, but there must be agreement between the parties before a dispute can be referred to the Industrial Court, and furthermore the decisions of the Court are not legally enforceable.

On October 22, the Minister of Labour informed the representatives of the British Employers' Confederation of the T.U.C. and nationalised industries represented on the Minister's National Joint Advisory Council of his decision to terminate the Industrial Disputes Tribunal. The T.U.C. has objected to the Minister's action and has stated that it views seriously the decision to change the law of industrial relations without full consultation with them.

ROOF REPAIRS TO ST. PANCRAS STATION, L.M. REGION.—Work has been started on extensive repairs to the roof at St. Pancras Station, London Midland Region, British Railways, which will incorporate glass over the whole of the concourse to give more natural light. The work will be carried out from scaffolding which will reach 100 ft. high. The total area to be glazed is 25,000 sq. ft.

Contracts and Tenders

Electric locomotives for the Yugoslav Railways

The Yugoslav Railways has placed an order for 50 3,000-h.p. electric locomotives; 10 with Ansaldo S.p.A., Genoa, Italy, and 40 with the Djuro Djakovic Locomotive & Wagon Works, Slavonski Brod, Yugoslavia. Motors, transformers, and other components and installations will be supplied by the Rade Koncar Works, of Zagreb; Elektro-Sribija, of Belgrade; and Svijetlost of Rijeka.

The British Transport Commission has placed the following orders for a total of 39 power transformers required for British Railways electrification programmes in the Eastern and Scottish Regions:—

Bruce Peebles & Co. Ltd., Edinburgh
5: 17 power transformers, 3, 5, and 7.5 MVA capacity

C. A. Parsons & Co. Ltd., London, S.W.1: 8 power transformers, 7.5 MVA capacity

Hackbridge & Hewitt Electric Co. Ltd., Walton-on-Thames, Surrey: 9 power transformers, 3 and 5 MVA capacity

Crompton Parkinson Limited, Hayes, Middlesex: 5 power transformers, 5 MVA capacity.

The power transformers are needed for the Glasgow Suburban; Fenchurch Street to Tilbury and Southend; Liverpool Street to Enfield, Chingford, Hertford East, and Bishops Cleeve; and Liverpool Street to Chelmsford and Southend electrification programmes, and will be installed where supplies of alternating current have to be transformed by British Railways to either 6.25 kV, or 25 kV, for distribution to the overhead track equipment.

Robert Hudson Limited, Leeds, has received an order from the Indian Railway Board for 60 300-cu.-ft. 5-ft. 6-in. gauge automatic tipping wagons for handling bulk materials in dock areas. The order is valued at some £100,000.

British Railways, London Midland Region, has placed an order with the Plasser Railway Machinery Co. Ltd. for 17 hydraulic track tramping machines to be used for track improvement work in connection with main-line electrification. Seven will be delivered by the end of the year.

British Railways, North Eastern Region, has placed the following contracts:—

Clough, Smith & Co. Ltd., Crawley: electrical installation, York up marshalling yards

Wright, Anderson & Co. Ltd., Gateshead: supply of steelwork reconstruction of footbridge No. 297, Leeds-Newcastle line, Pelaw Junction

Ransomes, Sims & Jefferies Limited, Ipswich: mobile crane, English Street Goods, Hull

Sedgwick Limited, East Ham: plate bending and folding machine, Walker Grate Works

Wellerman Bros. Ltd., Sheffield: strengthening of arches, bridge No. 39 over Cod Beck.

The Special Register Information Service, Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From India:

3,583 signal arms, enamelled, type A1, 4 ft., square ended, front red with white

band, back white with black band

122 signal arms, enamelled, type A2, 4 ft., fish tailed, front red with white band, back white with black band

258 signal arms, enamelled, type A2, 4 ft., fish tailed, front yellow with black band, back white and black band.

The issuing authority is the Director General of Supplies & Disposals. The tender No. is WP2/4466/4/C. Bids should be sent to the Director General of Supplies & Disposals, Shahjahan Road, New Delhi. The closing date is November 13, 1958. The Board of Trade reference is ESB/25945/58.

From South Africa:

293,000 springs, brake block cotter

1,100 springs, drawgear

900 springs, brake release wagon engine tenders.

The issuing authority is the Stores Department, South African Railways. Bids in sealed envelopes, endorsed "Tender No. K.7543: Springs: Bearing, Brake, and Drawgear" should be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg. The closing date is November 14, 1958. Local representation is essential. The Board of Trade reference is ESB/25798/58.

13 items of overhead track equipment including clevis pins, earth wire clamps, tunnel cross span fittings, eye bolts, tower hooks, thimbles, steady arms, hockey sticks, steady arm sockets, steady arm attachment fittings, clevis fittings, and turnbuckles.

The issuing authority is the Stores Department, South African Railways. Bids in sealed envelopes, endorsed "Tender No. C.3314: Overhead Track Equipment" should be addressed to the Chief Stores Superintendent, P. O. Box 8617, Johannesburg. The closing date is November 19, 1958. Local representation is essential. The Board of Trade reference is ESB/26392/58.

From Portuguese East Africa:

28 items of permanent way equipment including rails, points, fishplates, rail bolts, and rail spikes.

The issuing authority is the Ports, Railways & Transport Department, Lourenço Marques. The tender No. is 209/58. A deposit must be made by tenderers as follows: rails, Esc. 739,500; points, Esc. 35,000; fishplates, Esc. 41,000; rail bolts, Esc. 8,750; and rail spikes, Esc. 62,500. The closing date is December 29, 1958. Local representation is essential. The Board of Trade reference is ESB/26144/58.

Further details regarding the above tenders, together with photo-copies of tender documents, can be obtained from the Branch (Lacón House, Theobalds Road, W.C.1.).

ANTOFAGASTA (CHILI) & BOLIVIA RAILWAY CO. LTD. RESULTS.—No ordinary dividend is being paid by Antofagasta (Chili) & Bolivia Railway Co. Ltd. for 1957 (against 4 per cent in 1956). After taking into account the balance of £823,467 brought forward from 1956 and deducting debenture interest, provisions for taxation, and preference dividend, there is a credit balance on net revenue account of £732,830 to be carried forward.

Notes and News

R.O.D. Officers' Reunion Dinner.—The R.O.D. Officers' Reunion Dinner will be held this year on Friday, November 21, at the Transportation Club, 44, Wilton Crescent, London, S.W.1, at 6.30 for 7 p.m. Sir Michael Barrington-Ward will be in the chair.

Fire Under St. Pancras Station L.M. Region.—A fire broke out in the cellars under St. Pancras Station, London Midland Region, British Railways, on October 22, causing extensive damage in a wine bottling plant, and at one time threatening the station above. Some 200 firemen worked in relays of 50. Platforms 2 and 3 in the station were cordoned off and trains diverted. The fire was put out after 5 hr.

London Theatre Helps Staggered Travel Hours Campaign.—The London Palladium is to help the Central London staggered hours campaign this winter by beginning matinees at 2.45 p.m. instead of 2.30 p.m. and finish at 5.50 p.m., to miss the 5.30 evening traffic peak at Oxford Circus nearby. Moss Empires, owners of the Palladium, are the first West End theatre management to respond to the appeal for alterations in theatre and cinema hours to avoid homegoing matinee audiences travelling at the evening bus and Underground traffic peak.

Reballasting and Drainage of Cowburn Tunnel, L.M. Region.—Reballasting and drainage of Cowburn Tunnel, between Edale and Chinley, London Midland Region, British Railways, will be carried out on November 2, 9, 16 and 23. The old ballast in the two-mile tunnel will be removed and clean ballast laid to a depth of 1 ft. A large part of the existing pipe drainage system will be replaced by channel drains. A special bus service will convey rail passengers between Edale and Chinley during the work.

Road Haulage Tractors in the N.E. Region.—Two 15-ton E.R.F. haulage tractors have been put into service by British Railways, North Eastern Region, for general haulage work in the Leeds and Newcastle areas. The vehicles are hauling heavy traffic, using existing drawbar trailers, to and from railway depots before or after conveyance of the goods by rail. The tractors, powered by a Gardner five-cylinder diesel engine, type 5.L.W., developing 94 b.h.p. at 1,700 r.p.m., were supplied by E.R.F. Limited

of Sandbach, Cheshire. The bodies were built at British Railways carriage & wagon works, Stratford. The accompanying illustration shows one of the 15-ton tractors in use recently when a 15-ton crane girder, 68 ft. in length by 7 ft. high by 7 ft. wide, was transported on a 20-ton pole trailer from Rodley, to Leeds Hunslet Lane Goods Depot. There the girder was transferred by crane to a bogie rail wagon and the journey to Glamorgan in South Wales was completed by rail.

Additional Subsidiary Formed to Handle Sellotape.—From November 1, the Sellotape distributing section of Gordon & Gotch Limited will operate as a separate company with the title Gordon & Gotch (Sellotape) Limited. The name Sellotape now embraces a range which includes waterproof, oil and corrosive resistant, insulating, masking, double-sided and laminated pressure-sensitive tapes.

Stewarts & Lloyds Limited Reduce Output.—Stewart & Lloyds Limited has announced that the plug mill department of its Corby steelworks is to switch from three-shift to two-shift working from the beginning of next month. The plug mill is already on a four-day week. The main reason is that the oil companies, which take the majority of its output of tubes for pipelines, have become over-stocked in recent months and have therefore cut back orders.

Advertising Sold in Complete Train.—For the first time in the 95 years history the London Underground railways advertising space in the coaches is being sold by the trainload. The Commercial Advertising Service of the British Transport Commission has sold for a full year all space in the first of the three prototype trains with unpainted aluminium bodies, running experimentally on the Piccadilly Line, to the London and Manchester Assurance Co. Ltd. The display consists of 230 advertisements, each 2 ft. wide and nearly 1 ft. deep. There are four designs, all in colour. They will be on show to the public for more than 11 hr. daily. During the next 12 months the train will travel more than 60,000 miles and 1½ million people are expected to see the car cards display. The advertising space in the two other trains now on trial on the Piccadilly Line have also been sold by complete train. The London & Manchester Assurance Co. Ltd. has been using British Transport Advertising sites for some years. Besides car card spaces on the Under-

ground, it has taken similar sites in carriages in the Southern Region of British Railways. The company also uses target and lower rear positions on many B.T.C. buses.

Wickman Expansion in Brazil.—Wickman Limited announces that it has acquired a majority holding in Brasmac Industria e Comercio S/A, Sao Paulo, Brazil, with a view to furthering the Wickman Group exports to, and expanding its tungsten carbide interests in, that industrial market.

"Berkeley Square" Revived by Euston Players.—To celebrate its 25th anniversary the London Midland Dramatic Society (now named Euston Players) will present "Berkeley Square" at the Rudolf Steiner Theatre, Park Road, London, N.W.1, on November 20, 21 and 22.

Car Parking at Scottish Region Stations.—To help motorists to overcome the finding of car parking accommodation in Glasgow since the introduction this week of "No Waiting" signs in many more city streets, space for the parking of motor cars has been provided by British Railways at some 30 outlying stations in the Glasgow area. For modest rates many motorists working in the city will be able to park their cars at a convenient station and continue their journey to and from the city by train.

Exide Motor Show Luncheon.—Mr. A. W. Brown, Chairman of Chloride Batteries, devoted a large part of his remarks at the 1958 Exide Motor Show luncheon last week to his company's reliance on the power of advertising. He said that they had consistently used modern advertising methods to spearhead their sales campaigns. They believed that the only way to survive, let alone grow and prosper, in commerce today was to use intelligently and imaginatively the most suitable media to carry their message to their trade customers and consumer public. Mr. Brown stated that in their advertising programmes they relied to a very great extent on the Press, and, as manufacturers of technical products sold in many different markets to technical buyers, they found that the trade and technical Press, in particular, were invaluable to them.

British Travel & Holidays Association Award to B.T.C.—The British Travel & Holidays Association every year awards a "Come to Britain" trophy and certificates of commendation for the most enterprising work done in promoting and dealing with tourist traffic in Britain; the object is to stimulate interest in providing new tourist services and amenities. The British Transport Commission is one of six entrants to be awarded certificates of commendation this year. It is praised for improvements in its railway, hotel, and catering services. Sir Arthur Morse, Chairman of the Association, last week presented the trophy to Mr. Charles Forte, a Director of Theatre-Restaurants Limited, proprietors of "The Talk of the Town" theatre-restaurant, for which it was awarded. He paid tribute to the enterprise being shown by the tourist trade, and stated that the entries received for the "Come to Britain" award represented about £25 million in investment, much of it from private and not Government sources. The other five certificates were awarded to Grosvenor House Hotel, London, for addition of a new wing; the London Planetarium Co. Ltd., for inaugurating the London Planetarium, the first in Great Britain; the Earl of Shrewsbury for the opera festival staged



A 15-ton E.R.F. haulage tractor carrying 15-ton crane girder 68-ft. long

at Ingestre Hall, Stafford; the Washington Group of Hotels, London, for extensions and improvements to hotels; Whitbread and Co. Ltd., for the Sherlock Holmes public house and exhibition in Northumberland Street, London.

Associated Electrical Industries Limited Change of Address.—A.E.I. Limited has moved its London office to 33, Grosvenor Place, London, S.W.1.: tel. Belgravia 7011.

Cut in United States Steel Freight Rates.—To meet increasing competition from road transport undertakings, some 30 U.S.A. railways serving eight mid-western States have cut iron and steel freight rates by about 20 to 30 cents a 100 lb. The reductions affect Illinois, Missouri, Iowa, Wisconsin, Minnesota, Michigan, South Dakota, and Nebraska.

Schools Open Day at R.E. Transportation Centre.—The Commandant of the Transportation Centre, Royal Engineers, Longmoor, Hants., Brigadier P. D. G. B. Buchanan, and his staff were hosts to boys from schools in neighbouring counties on the open day on October 29. Boys were shown, and given rides on, the Longmoor Military Railway, and demonstrations were arranged of the model railway used for training military railway signalmen. Other attractions included the Transportation Centre museum.

World Congress of the International Road Federation.—The third world congress of the International Road Federation was opened in Mexico City on October 27. Some 2,000 foreign delegates, representing 60 countries, attended. The selection of Mexico City as the seat of the conference is interpreted as a tribute to the achievement of the present Government in road construction. In 1957, 1,891 million pesos (£54,000,000) were spent on communications by the Federal Government, apart from State and municipal contributions. The national network of roads was extended by 8 per cent during 1957.

R. & W. Hawthorn, Leslie & Co. Ltd. Results.—The group profit of R. & W. Hawthorn, Leslie & Co. Ltd., engineers and shipbuilders, for the year ended June 30, 1958, advanced from £1,119,741 to £1,545,452. An unchanged final dividend of 17½ per cent increases the total dividend from 22½ to 25 per cent. After allowing for taxation at £792,342 (£598,306) the net profit is £753,110 (£521,435). The directors have stated that the results were favourably influenced by a higher than average number of contracts being completed during the year.

Withdrawal of Passenger Services Between Totnes and Ashburton, Western Region.—British Railways, Western Region, is to withdraw the passenger train service between Totnes and Ashburton on November 3. Staverton, Buckfastleigh, and Ashburton stations will be closed for passengers. The branch, 9½ miles long, is served by six trains each way on weekdays with additional services on Saturdays. Road services in the area are operated by the Western National Omnibus Co. Ltd., and the Devon General Omnibus & Touring Co. Ltd.

Extensions to Manchester London Road Station, L.M. Region.—Work has begun on the construction of three additional platforms at Manchester London Road

Station, London Midland Region, British Railways, to deal with the extra trains to be run when main-line electric train services are commenced in the autumn of 1960. The existing platforms are to be lengthened, and the concourse is to be widened. The station footbridge is to be remodelled and the footbridge connection with Mayfield Station removed because, with the completion of electrification, Mayfield will not be used for passengers.

Cincinnati Shaper Company Subsidiary in Scotland.—The Cincinnati Shaper Co. Ltd., a wholly owned British subsidiary of the Cincinnati Shaper Company, Ohio, U.S.A., recently moved into a specially constructed works in East Kilbride, near Glasgow. Production is starting with 4-in. capacity guillotine shears and 90- and 150-ton press brakes. It will be extended to cover the complete range of Cincinnati guillotine shears up to 1½ in. and Cincinnati press brakes up to 1,400 tons. Mr. David H. March, Vice-President & Director of the parent company in U.S.A., is Managing Director of the British company. The Cincinnati Shaper Co. Ltd. is the first subsidiary of an American machine tool company to be established in Scotland.

New Container Ship on Harwich-Rotterdam Service.—The m.v. *Isle of Ely*, the new ship of the Eastern Region of British Railways, referred to in our issue of July 25, made its maiden voyage on October 27, when it entered regular service between Harwich and Rotterdam. Railway-operated ships have been working on this run for 96 years. The new vessel, the first Eastern Region vessel to be designed specially for container traffic, makes possible three sailings a week in each direction. The *Isle of Ely*, which sails from Harwich on Mondays, Wednesdays, and Fridays, has a capacity of 42 "B"-type standard railway containers below deck; it can carry a full load of general cargo or a mixed load of cargo and containers. Early next year a sister ship, the *Colchester*, recently launched at Goole, will join the *Isle of Ely* on this service. The placing in service of these two vessels is expected to develop further container traffic, which is already showing a marked increase.

Improved Service from Tees-side to London.—As a result of requests from industrial and business interests on Tees-side for a service to give an arrival before luncheon in London, a diesel railcar service, the "Tees-Thames Link" began experimentally on October 27. The diesel train runs on Mondays to Fridays, with departures from Middlesbrough at 6.48 a.m., Thornaby 6.53 a.m., and Eaglescliffe 7 a.m. There are connecting trains from Redcar, Saltburn, and Darlington. After calling at York, the "Tees-Thames Link" arrives at Doncaster at 8.37 a.m., giving a connection with the 8.51 a.m. main line train from Doncaster, due Kings Cross at 11.40 a.m.; this is a restaurant car train on which breakfast and morning coffee are served. By calling at York, the new service gives connections to Leeds (8.53 a.m.) and Manchester (10.39 a.m.).

D.P. and Tudor Battery Production Merged.—From October 31, the activities of Tudor Accumulator Co. Ltd., Duckinfield, Cheshire, are to be completely merged with those of D.P. Battery Co. Ltd., Bakewell, Derbyshire, who will produce and market Kathanode and Tudor lead-acid batteries previously supplied by

the separate companies, both of which are within the group controlled by Chloride Electrical Storage Co. Ltd. Mr. J. Nadin, present Chairman and General Manager of D.P. Battery Co. Ltd., will remain as Chairman of the company, but will retire as General Manager on December 31, 1958. Mr. N. L. Howell, present General Manager of The Tudor Accumulator Co. Ltd., will succeed Mr. Nadin on January 1, 1959.

Institution of Locomotive Engineers.—A joint meeting of the Institution of Locomotive, Electrical and Mechanical Engineers will be held at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, on Thursday, December 11, at 5.30 p.m., when a paper will be read and discussed on "The Deltic Locomotive," by Mr. C. M. Cock.

Hunslet Diesel Locomotives for the Scottish Region.—The Hunslet Engine Co. Ltd. recently commenced delivery of 12 204-h.p. 0-6-0 type diesel-mechanical locomotives on order for the Scottish Region of British Railways. Two are for use at Stranraer Motive Power Depot, and the remainder for service at Thornton Motive Power Depot. This is the first time that Hunslet locomotives of this class have been supplied for use in the Scottish Region.

British Diesel Engine to be Made in France.—The "499" diesel engine made by F. Perkins Limited, of Peterborough, is to be manufactured under licence in France by Bugatti at their Molsheim factory, for Société Française des Moteurs F. Perkins. Production of the 1.6-litre "499" engine will start soon and is expected to reach 5,000 engines in the first year and 12,000 during the second. A number of French motorcar and tractor manufacturers are stated to be interested in this engine, which develops 43 b.h.p. at 4,000 r.p.m.

Forthcoming Meetings

November 1 (Sat.).—Electric Railway Society, at the College of Technology, Suffolk Street, Birmingham, at 2.45 p.m. Paper on "The Moscow Metro," by Mr. J. H. Price.

November 1 (Sat.).—The Stephenson Locomotive Society, North Western Area, in the Y.M.C.A., Fargate, Sheffield, at 6.30 p.m. Talk by Viscount Garnock on "Railroads on the North American Continent."

November 1 (Sat.).—The Stephenson Locomotive Society, North Western Area, in the Conference Room, Liverpool Central Station, at 7.30 p.m. Paper on "The Caledonian 4-4-0's" by Mr. Alex H. McNair.

November 1 (Sat.).—Railway Correspondence & Travel Society, South of England Branch, at the Y.M.C.A., Friar Street, Reading, at 6 p.m. Paper on "Reminiscences of the Midland & South Western Junction Railway," by Mr. Y. B. Sands.

November 3 (Mon.).—Institute of Transport, Metropolitan Section, 80, Portland Place, London, W.1, at 5.30 for 6 p.m. Paper on "Some impacts of air and road transport on railway economics and practices," by Mr. C. E. Whitworth.

- November 4 (Tue.).—Permanent Way Institution, Leeds & Bradford Section, in the British Railways Social & Recreation Club, Ellis Court, Leeds City Station, at 7 p.m. Paper on "The use of the Matisa recording trolley," by Mr. H. Field.
- November 4 (Tue.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, in the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. Paper on "Economics of Bedlam," by Professor A. Beacham, University College of Wales, Aberystwyth.
- November 4 (Tue.).—Institution of Civil Engineers, at Great George Street, Westminster, S.W.1, at 5.30 p.m. Presidential address by Professor A. J. S. Pippard.
- November 5 (Wed.).—Electric Railway Society, at the Fred Tallant Hall, 153, Drummond Street, London, N.W.1, at 7.15 p.m. Paper on "The daily round underground," by Mr. A. Gorton.
- November 6 (Thu.).—Institute of Transport, South Eastern Group, at the County Hotel, Canterbury, at 7.15 p.m. Paper on the "Channel tunnel," by Mr. M. A. Cameron.
- November 7 (Fri.).—The Railway Club, at 320, High Holborn, London, W.C.1, at 7 p.m. Paper on "The railways of the Wirral Peninsula," by Mr. G. F. A. Wilmot.
- November 7 (Fri.).—The Stephenson Locomotive Society, Scottish Area, at 25, Charlotte Square, Edinburgh, at 7 p.m. Paper on "G.C., G.E., and Stewarts Lane," by Mr. R. H. N. Hardy.
- November 7 (Fri.).—Institute of Transport, Leicester Group, at the City Transport offices, Leicester, at 7.30 p.m. Paper on "Packages for all transport," by Mr. F. Lovell, Transport Officer, English Electric Co. Ltd.
- November 7 (Fri.).—Institute of Transport, Midland Section, at the Queen's Hotel, Birmingham. Annual dinner and visit of President.
- November 8 (Sat.).—Permanent Way Institution, East Anglia Section, at Ipswich at 2.15 p.m. A paper on "Railway Weedkilling," illustrated, by Mr. G. G. Fisher.
- November 8 (Sat.).—Stephenson Locomotive Society, North Western Area, at Manchester Geographical Society, St. Mary's Parsonage, Deansgate, Manchester, at 6.15 p.m. Paper on "Hunting for railways. A writer in search of material," by Mr. J. I. C. Boyd.
- November 8 (Sat.).—Stephenson Locomotive Society, Scottish Area, at 302, Buchanan Street, Glasgow, at 2.30 p.m. Paper on "G.C., G.E., and Stewarts Lane," by Mr. R. H. N. Hardy.
- November 10 (Mon.).—Historical Model Railway Society, at the Railway Tavern, Liverpool Street, London, E.C.3, at 7 p.m. Paper on "The Caledon Low Tramways," by Dr. J. R. Hollick.
- November 10 (Mon.).—Railway Correspondence & Travel Society, Northampton Branch, at the Liberal Club, Castilian Street, Northampton, at 7.30 p.m. Paper on "The end of an era—the rise and fall of the narrow gauge in the British Isles and Eire," illustrated, by Mr. P. B. Whitehouse.
- November 11 (Tue.).—Institute of Transport, at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.30 for 1 p.m. Anniversary luncheon.
- November 12 (Wed.).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage

Walk, London, S.W.1, at 5.30 p.m. Paper on "Developments in the design of diesel locomotives," by Mr. B. W. Anwell.

November 13 (Thu.).—British Railways, London Midland Region Lecture & Debating Society, in the Clerical Staff Dining Club, Cardington Street, Euston, at 5.45 p.m. "That the quality of transport service is more important to the earning of revenue than the matter of price," a debate with the Railway Students' Association.

November 13 (Thu.).—British Railways, Western Region, London, Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Paper on "Transport problems in East Africa," illustrated, by Sir Arthur Kirby, Commissioner for East Africa.

November 13 (Thu.).—Institution of Railway Signal Engineers, York Section, at the Signalling School, Toft Green, York, at 5.30 p.m. Paper on "Automatic operation of marshalling yards," by Mr. W. H. Ellis.

November 13 (Thu.).—Railway Correspondence & Travel Society, Bristol & District Branch, at the Grosvenor Hotel, Bristol, 1, at 7.15 p.m. Paper on "Transport treasures," by Mr. J. H. Scholes, Curator of Historical Relics, B.T.C.

November 13 (Thu.).—Railway Students' Association, at Euston, at 5.45 p.m. Joint meeting with British Railways, London Midland Region, Lecture & Debating Society.

November 13 (Thu.).—The Stephenson Locomotive Society, London & Southern Area at Caxton Hall, Westminster, London, S.W.1, at 6.45 p.m. Paper on "The Lancashire, Derbyshire & East Coast Railway," by Mr. Stewart Dewsbury.

November 14 (Fri.).—Railway Correspondence & Travel Society, London Branch, at the Railway Clearing House, Eversholt Street, London, N.W.1, at 7.15 p.m. Paper on "Travels on the R.E.N.F.E.," by Messrs. J. Moreley and D. Trevor Rowe.

Railway Stock Market

Recent cheerfulness in stock markets has given way to caution by buyers, and share values have shown a moderate reaction, which extended to most sections, though selling was by no means heavy. The advance was bound to be followed sooner or later by a reaction, which is a sign of healthy market conditions and an indication that there has not been over-speculation. Several factors combined to make for the easier trend, namely a reaction on Wall Street, company results showing reduced earnings, and a decline in British Funds. The last was due in the main to less hopeful views about an early cut in the bank rate to 4 per cent, though the prevailing view is that it will come down to this level in the next few months.

There was not much movement among foreign railway stocks. Antofagasta remained active, and at 18½ was only fractionally lower compared with a week ago, while the preference stock was maintained at 36½. Moreover, United of Havana second income stock has strengthened from 6½ to 6½, and San Paulo Railway 3s. units held their recent improvement to 2s. 1½d. Costa Rica ordinary stock remained at 16 and Chilean Northern first debentures at 47½.

International of Central America common shares were quoted at \$16½ and the preferred stock at \$107½. Paraguay Central prior debentures were 11.

Among French railway sterling bonds Midi 4 per cents were 82, at which there is a yield of over 5½ per cent.

Nyasaland Railways shares held their recent rise to 12s. 9d. and the 3½ per cent debentures kept at 65½. West of India Portuguese capital stock strengthened to 77; the 5 per cent debentures have remained at 65.

Canadian Pacific reflected Wall Street, easing from \$53 to \$52½; the 4 per cent preference kept at 56, but the 4 per cent debentures eased to 66½ at which there is an attractive yield of 6 per cent. White Pass shares were maintained at \$14½.

Among shares of locomotive builders and engineers, Birmingham Wagon again attracted some attention because of the good yield which is now just under 10 per cent, the price having moved up from 19s. 7½d. to 20s. 3d. G. D. Peters kept firmly held and quoted at 25s. 7½d., while Beyer Peacock 5s. shares at 8s. 10½d. were also the same as a week ago. Charles Roberts 5s. shares firmed up to 10s. 3d. though among more active shares, part of recent big gains was lost. Westinghouse Brake receded from 43s. to 41s. 9d. compared with a week ago. Wagon Repairs 5s. shares have been well maintained at 10s. 3d., but after rising to 16s. 10½d. Gloucester Wagon 10s. shares eased to 16s. 6d., which, however, is the same as a week ago. Moreover, North British Locomotive at 12s. 4½d. were well maintained. Higher dividend hopes kept Crompton Parkinson 5s. shares active and they held their recent rise to 13s. Associated Electrical came back from 55s. to 53s. 6d. and English Electric, 57s. 9d. compared with 60s. 3d. a week ago, reflected the easier trend in active shares which have scored good gains in recent weeks. General Electric came back from 39s. 6d. to 37s. Elsewhere, British Timken at 58s. 9d. were at their best for the year, while Ferrybridge Industries 5s. shares at 15s. 7½d. remained under the influence of the good impression created by the interim statement. Ransomes & Marles 5s. shares were 14s. 6d. and Renold Chain 39s. 4½d. Acrow Engineers 5s. shares at 42s. 6d. held steady on further consideration of the chairman's annual statement.

Buyers were about for Pressed Steel 5s. shares, which gained 1s. at 21s. 3d. T. W. Ward were well maintained at 87s. and British Oxygen at 44s. were the same as a week ago, but British Aluminium (51s. 9d.) lost part of their recent good rise. Dowty Group 10s. shares also eased—from 40s. 6d. to 39s. 9d. Mather & Platt were 47s. 6d., and Ruston & Hornsby 24s. 3d. Steel shares turned easier with United Steel 25s. and Dorman Long 26s. the prevailing view being that, bearing in mind the reduced demand for steel, dividends are unlikely to be increased, though there is general confidence that they will be maintained at last year's rates.

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